



Published on the 1st of each Month by

THE INDIA RUBBER PUBLISHING CO.

No. 15 West 38th Street, New York.

CABLE ADDRESS: IRWORLD, NEW YORK.

HENRY C. PEARSON, Editor

Vol. 44.

JUNE 1, 1911.

No. 3.

SUBSCRIPTIONS: \$3.00 per year, \$1.75 for six months, postpaid, for the United States and dependencies and Mexico. To the Dominion of Canada and all other countries, \$3.50 (or equivalent funds) per year, postpaid.

ADVERTISING: Rates will be made known on application.

REMITTANCES: Should always be made by bank or draft, Postoffice or Express money orders on New York, payable to THE INDIA RUBBER PUBLISHING COMPANY. Remittances for foreign subscriptions should be sent by International Postal Order, payable as above.

DISCONTINUANCES: Yearly orders for subscriptions and advertising are regarded as permanent, and after the first twelve months they will be discontinued only at the request of the subscriber or advertiser. Bills are rendered promptly at the beginning of each period, and thereby our patrons have due notice of continuance.

COPYRIGHT, 1911, BY THE INDIA RUBBER PUBLISHING CO.
Entered at New York postoffice as mail matter of the second class.

TABLE OF CONTENTS ON LAST PAGE OF READING.

BRAZIL AND VALORIZATION.

IT HAS been held by financiers from the beginning that Brazil's valorization of coffee was economically unsound. It was also predicted that other interests, sugar, cacao, perhaps Brazil nuts, and certainly rubber, would sometime insist upon the same government assistance. In one of these items the prophets seem to have been right. The secret syndicate that gathered in several thousand tons of rubber is a matter of history. So is the part that the Banco de Brazil took in the matter. The fact that the holders of the rubber were not able to raise the price and that it fell materially in spite of their manipulation, has placed them in an exceedingly awkward position. To extricate themselves the government of Pará is said to have passed the following propositions:

"First: Loan \$30,000,000, 10 years, 5 per cent. interest. Guaranteed by tax 400 reis.

"Second: Guarantee privilege individuals or concerns engaged cleaning, washing, refining rubber.

"Third: Open agricultural bank, capital up to \$15,000,000. Pará State guaranteeing 6 per cent. interest."

It will be noted that the first of these puts a supertax on rubber of 400 reis per kilogram, equal to a trifle over 5 cents a pound.

Brazilian rubber is already burdened by too large an export tax. More than any other thing it is this tax that keeps outside capital from planting up the vast fertile country in and about Pará to *Hevea Brasiliensis*.

The second proposition for washing rubber at Pará and Manáos has often been mooted. It would, of course, save something in freight but it would not save anything to the rubber manufacturer for the reason that the *concessionaire* would expect to make a good thing of it and be obliged to share it with the government. The time to wash rubber is before it is coagulated, just as the planters in the Far East do. That process then becomes a part of coagulation. There is great danger that rubber washed and sheeted in either of the centers named will be held up as a manufactured product by the customs officials in the United States, Germany, France, Russia and Belgium, and be very heavily taxed. The fact that the rubber manufacturer gets no advantage from this washing, that it is not done to standardize the rubber but simply to raise revenue, and that it is going to be a great cause of trouble, is bound to make every manufacturer in the world more than ever bitter against the great Brazilian crude rubber producers, which is a pity.

Propositions of the same sort have been made and it is said passed in Manáos. It is probable that none of the plans for raising money on bonds from either Pará or Amazonas will go through without the backing of the Federal government. Although Brazil is a heavy borrower it is said that England, for example, would absorb the bonds thus backed.

A MULTIPLICATION OF ELASTICITY IN INDIA-RUBBER.

PROLOGUE.

THE man of solid common sense, the unvaryingly matter-of-fact individual is, of course, the bulwark of the nation, the sturdy wheel horse of industry. He is never an inventive, imaginative, creative genius, nor can he abandon the ruts of accepted experience and hew new roads of his own. To the common-sense man, the creative type, is flighty, his ideas are wild, his deeds grudgingly acknowledged. All this is but a preliminary, designed to muzzle the unimaginative reader ere he condemn the somewhat startling suggestions that follow.

ARGUMENT.

Saccharin, which may be termed for the sake of this argument synthetic sugar, has 500 times the sweetening power of commercial sugar. It is a chemical product and if the pure food laws were favorable would revolutionize a score of industries that are today the greatest users of cane and beet sugar.

THE CASE SUPPOSITIOUS.

Chemists and experimenters are constantly essaying the production of synthetic rubber "equal to the best Up-river fine." Why not produce a colloid that is infinitely superior to Pará? Produce a colloidal parallel for saccharin. Granting that a pound of Pará will easily assimilate a pound of carbonate of lime and still be strong, resilient and durable, let the chemist evolve a substance a pound of which will assimilate 500 pounds of adulterant and be equal to the Pará compound. It does not matter what the cost of the base from which it is made or how rare the ingredients employed, the substance will be so valuable that at \$300 a pound it will be a better purchase than Pará at \$1. It would be by far the most valuable product used in the arts. Instead of tons of crude the great companies could get along with pounds, the little ones with ounces. A small manufacturer could bring in his week's supply in his coat-tail pockets, and use his safe for a drying room. More valuable than gold, pound for pound, infinitely more useful in the arts, it would make itself the medium of exchange and put that heavy and actually useless metal down with lead, where it belongs.

Navy specifications would sternly call for not less than 1,000 per cent. of synthetic Pará, and a thousandth of a grain less would bring about rejection of the goods.

It would be sold by photograph, and sworn analysis rather than by sample and shipped in bullion chests guarded by Pinkerton detectives. Special armed guards would be necessary in every factory grinding room. Steel vaults with time locks would be its storehouse.

All that and much more at \$300 a pound. But suppose it were put on the market at \$3 a pound. No one can comprehend the industrial revolution that would follow. Rubber roads would stretch from city to city and rubber tires would be unnecessary. Cattle would no longer be slaughtered for their hides for rubber leather would be so much better and cheaper that shoe, trunk and harness manufacturers could not afford to use anything else. Iron, lumber and paper would have to reckon with a rival so cheap, so adaptable, so easily worked that they would have the greatest difficulty in competing.

There is, to be sure, no indication that such a dis-

covery is imminent. Indeed, "just as good as fine" is not yet accomplished. But who can say what will eventuate if only the right effort is put forth. Aiming at something much better than Pará might bring about a product at least equal to it. Not failure but low aim applies.

With apologies.

Work calmly in thy rubber mill,
Oh, thou, whoe'er thou art;
And let no wild synthetic dreams
Oppress thy fearful heart.

MECHANICAL TAPPERS AND GATHERERS.

THE late J. B. Carruthers when at the head of the Botanical Gardens in Trinidad, expressed himself as doubtful of the possibility of planters of *Hevea* anywhere in the Americas competing with those in the Far East. He acknowledged that everything in the way of climate, soil and moisture was ideal in the Guianas, for example, but the labor cost seemed to him an insurmountable obstacle. That is to say, 15 cents a day as against 40 cents for a coolie was enough to make a marvelously profitable business in Malaya unprofitable in Guiana. Were Para rubber to drop to 50 cents a pound and stay there, it doubtless would cause those who are considering planting in the Americas to pause, but such an eventuality is hardly possible for years to come, at least. Plantation Para costs in the Far East, say 25 cents a pound. In the Guianas it may cost 35 cents, perhaps 40 cents, but even at that it will be a marvelously profitable crop.

Then, again, it must be remembered that labor costs in the East are gradually going up. It is not improbable that with the enormous expansion in planting in Ceylon the Federated Malay States, Java, Sumatra, Borneo, etc., labor will become scarcer and wage scales appreciate considerably. Then, too, there is the mechanical faculty of the American planter to be taken into account. It is by no means thinkable that the last word has been said upon methods of tapping, gathering and coagulating. With trees set in orderly rows equally distant one from another, who can say that it is impossible to operate mechanical tappers and gatherers* that will do the work of hundreds of coolies? When the Yankee gets too far behind in the race for any sort of supremacy, he is likely to discover some short cut that lands him at the goal with the rest. He certainly is far behind in the production of systems of tapping and gathering now. Nearly all of the successful ones are of English origin, and are the result of much labor and experiment. To better them is to possess and utilize genuine mechanical genius.

THEATRES OR EXPERIMENT STATIONS?

A MEXICAN friend draws our attention to a magnificent theater building by his government costing \$8,000,000, with probably the most elaborate and costly piece of glass tapestry ever produced. Americans, English and Germans have invested somewhere about 20,000,000 of dollars in *Castilloa* and guayule in Mexico. For a title of \$8,000,000 two or three experiment stations could have been established, and scores of the vexatious problems that the planters and extractors have wrestled with alone, could have been solved scientifically and quickly. Such action on the part of the Mexican government would not only result in profit to the country, but would attract more capital, keep more laborers employed. The *Castilloa* is indigenous in Mexico. There are many varieties of this interesting tree—the *elastica*, *Markhamiana*, *tunu*, *Ulei*, etc., etc. The privilege, nay, the duty, of the Mexican government was to experiment with every one of these. To find the best for cultivation and advise and help planters. To study tapping and coagulation and point the best way. Then, too, with guayule (*Parthenium argentatum*) the problem of its propagation, and, indeed, of its extraction belonged to a government agricultural board. We are very friendly to Mexico. She has been good to many Americans, but \$8,000,000 of government money for a theater and nothing for rubber is unfortunate. Perhaps, however, the experiment stations are yet to come.

LISTEN TO THE RUBBER BAND.

PUT your ear to the ground and listen to the insistent demand of wholesaler and retailer for lower priced goods. Crude rubber dropped to \$1.12, and they believe that prices of manufactured goods should be immediately revised to that level. Does it interest them that that was only a price on paper, designed to start the manufacturer buying to the end that a rising market coerce all of the rest to come in and put it still higher? Not a whit, rubber was when they placed their contracts? Will they guarantee any sort of new level of low prices for crude rubber for six months or a year? In the event of a sudden rise, are they likely to urge an advance in list prices or a diminution of discounts? Not they. Put not one-half of a whit. Do they remember how high your ear to the ground—the deaf one.

THE A. C. A. SPECIAL TIRE.

THE announcement that the Automobile Club of America was to sell an automobile tire to its members, that is, a special tire bearing its own brand, attracted

a great deal of attention and much comment, adverse and otherwise. As to who manufactures it the consensus of opinion among those who handle automobiles pointed to a concern new in the field, not very large, and one that had never made a record as a producer of high-grade tires. In other words, they believed that the officials of the club had been fooled. Such, however, is very far from being the case. It transpires that the company who are to build these tires which, by the way, will be ready for delivery to members of the club in all regular sizes as we go to press, is one of the large tire producers. Its experience in tire manufacture, its equipment and responsibility, are beyond criticism.

The club for this special tire is paying 25 per cent. more than it would pay for any standard tire on the market. With its large membership, together with the alert, intelligent management of the accessories department, the club will undoubtedly furnish a great number of tires. It is understood, however, that the club officials have no desire to discriminate against any of the standard makes of tires which they will supply to members on requisition.

AMERICAN MANUFACTURERS, WHO ARE LOOKING for foreign trade, owe a debt of gratitude to the Bureau of Manufactures of the Department of Commerce and Labor at Washington, the extent of which they hardly recognize, for the work it is doing in clearing for them the way to export business. The foreign tariff work the bureau is doing is among the most important of its labors, and no expense or trouble is spared to keep its records and publications in this department complete and up to date. Information in relation to the tariffs of foreign countries can always be obtained on application to the bureau, and a list of individuals and firms engaged in foreign trade, showing the lines of goods and the countries in which each is particularly interested, is now in course of compilation, so that exporters may be kept fully informed of all tariff changes abroad and subjects selected for immediate treatment in the Bulletins that will prove most generally helpful.

UNSEASONABLE WEATHER MAY MEAN MUCH TO RUBBER MANUFACTURERS. Late snows or none, lack of slush in city and town, notably restrict the sales of rubber footwear. "Dry spells" spell disaster to makers of rubber clothing and mackintoshes, and a late, cold spring results in no garden hose business, and a greatly restricted sale of pneumatic tires, which latter condition is one from which we are but just emerging.

TIME WAS WHEN THE PERIPATETIC FORMULA seller was listened to with respect by most rubber manufacturers and his wares had a value proportionate to the air of mystery he could assume and to his eloquence. His day is done, however. A broader knowledge of crude rubber, of ingredients used, and of course, has dissipated the fog that enveloped the "secret compound" and instilled confidence in one's own where once was uncertainty. But there is another factor, the appreciation of which has done much to discourage compound selling. Climatic conditions affect not only the ingredients entering into various compounds, but their use in making up and the cures. Approved German compounds may not do at all in England or the United States. Formulae used for years in Japan would have to be radically changed to do in Italy. French practice in mixtures is not adapted to our own rubber mills. Indeed, locally the same is true. Massachusetts factories must use compounds and cures different from those used in New Jersey. Akron and New York have varying climatic conditions. It may be that one day one of the bright young investigators who are doing so much to standardize the various steps of rubber factory practice will take this subject up as a whole and formulate rules for compound and cure that will take into account humidity, temperature, etc. Until that is done, however, compounds from a distance will be viewed with distrust.

THE REPORT that the "chewing gum trust" are to put upon the market special extra large packages of gum for cows, so far lacks verification. The plan, however, is not without its points. Cows are the most natural constant and contented cud chewers of all the animals. A cud of chicle flavored with vanilla, spearmint or sen-sen would be far more lasting and genteel than the slippery grass ball now in general use. It might also add an aromatic flavor to the milk. Just how much chicle would be required to supply the 21,000,000 odd bovine chewers, it is hard to estimate. It is safe to say that it would take the whole of the visible supply, not an unmixed evil, for it might limit the use of gum by the present small army of human cud jugglers whose endless mastication in public is far from pleasant, to say the least.

IT SOUNDS PARADOXICAL, but rubber manufacturers dread a sudden drop in the price of crude rubber, just as much as they do an advance. Take, for example, the late break. Manufacturers here and abroad had millions of dollars worth of goods made up for spring and sum-

mer. These goods were made of crude rubber for which they paid a high price. When the market went off, however, they were forced by customers and by competition to take much less for them than if no such drop had taken place. There was no way out of it but to sell and pocket their losses.

AKRON, OHIO, with its fourteen (or is it more) rubber factories, regards itself as the greatest rubber manufacturing center in the world. It does not take into account, however, the great rubber town of Setauket, Long Island. The rubber names that odorously cling to that burg are the Long Island Rubber Co., L. B. Smith Rubber Co., Brookhaven Rubber Co., North American Rubber Co., Liberty Rubber Shoe Co., Manhattan Rubber Co., Manhattan Rubber Shoe Co., Iroquois Rubber Co., Montauk Rubber Co., Pará Rubber Mfg. Co., Excelsior Rubber Co., together with some dozen whose names cannot at the moment be recalled, and further together with the new Co-operative Rubber Co. All of these and more centered about one modest plant and were largely dominated by one interest—and operated by the same half hundred workers—a far more conservative and concentrated procedure than is evinced by the "Summit City's" huge factory buildings, millionaire stockholders and 13,000 employees.

THE PNEUMATIC TIRE USER MUST WONDER at the remarkable mileage that the other fellow occasionally gets, if he reads the advertisements of the great tire makers. He does not have the same experience and thinks he is robbed. But he isn't. Tire life depends upon five conditions besides good material and construction. Intelligent driving, good roads, the weight of the car, tire size, and good luck. To these might well be added climate. The man who happens to have all of these factors operating in his favor will get a wonderful mileage. When most or all of them are against him he will not.

THE SOMETIMES ACCURATE *Hartford Times*, under "Science Notes," reports that a German professor has produced artificial rubber by boiling "isofrem" in acetic acid. He thus produces "a grayish composite having all the qualities of rubber." The trouble is to secure the first ingredient. "Isofrem" is a distillate of Iceofrom, which is boiling water kept at 375 degs. Fahr., until it freezes solid. It is then cut into inch cubes, shellacked and exposed to the rays of the moon until they turn greenish pink. It is then ready for use.

British Guiana and India-Rubber

By the Editor of THE INDIA RUBBER WORLD.

FIRST LETTER.

Mistaken Ideas of British Guiana.—My First Visit to Georgetown.—Up the Essequibo River.—Old Dutch Ruins.—The Penal Settlement.—At the Sisal Man's Bungalow.—Native "Heveas."—A Railroad Ride.—The Botanical Gardens.—Rubber Experiments.—The Director of Science and Agriculture and His Work.

MAPS of the world or even of continents are exceedingly misleading. They do not give the smaller countries the size value that belongs to them. For example, on the map of

South America the Guianas appear to the cursory view as three tiny plots of land hardly worth consideration on the part of the pioneer planter or traveler. The truth is they are very sizable countries and there is room and opportunity in abundance. Nearly 60,000,000 acres is the estimated area of British Guiana with almost 11,000,000 easily accessible. A country equal in size to England, Scotland and Wales, traversed by great rivers, heavily forested, rich in every tropical product, an English colony with all that means in the way of stability, liberty and fair treatment, is surely worth knowing. Travelers, who have never even sighted its shores, have given it a reputation for extreme heat and unhealthfulness, but they were working without facts. It is hot, but not torrid, and the trade winds, blowing the year round, bring evenings so cool that a blanket is a comfort before morning. My first visit to British Guiana was so interesting that I went

again the following winter, and while my stay was brief, because of the death of my associate editor, I hope soon again to visit that "magnificent province" that is but a short week's run from New York.

It was St. Patrick's Day in the morning when first I saw Georgetown, and we docked promptly at six. The gang plank was hardly down when the Sisal Man came aboard and declared

if we were prompt we could catch the up-river boat and not be delayed in town two or three days. The Sisal Man, be it understood, had a bungalow and a big plantation some forty miles in the interior, was going in for rubber, and had been cabled by friends in New York to show the country and make our stay pleasant.

The stewards, customs' officers, and even the strangely dressed cabman, all helped and we were aboard the side-wheeled steamer, *Guiana*, ten minutes before the sailing time, ready for the eight-hour journey up the Essequibo river. We were the only first-class passengers and had chairs under awnings on the upper deck. The deck below was crowded with blacks, coolies, poor whites and coffee-colored non-descripts, who sat around on the luggage and ate and smoked and gossiped.

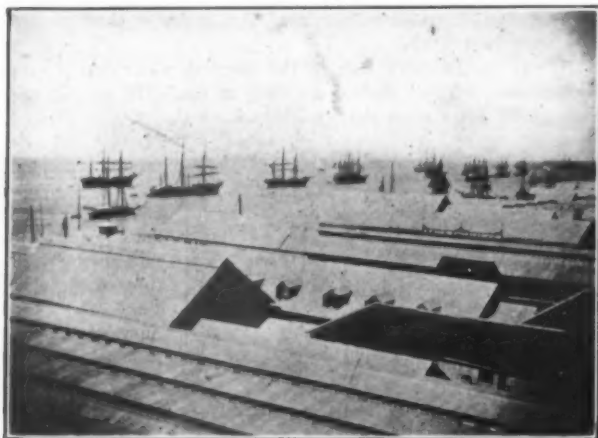
We got away promptly, as there is a heavy fine otherwise, and these little flat-bottomed pudgy, lazy-looking steamers keep to sched-



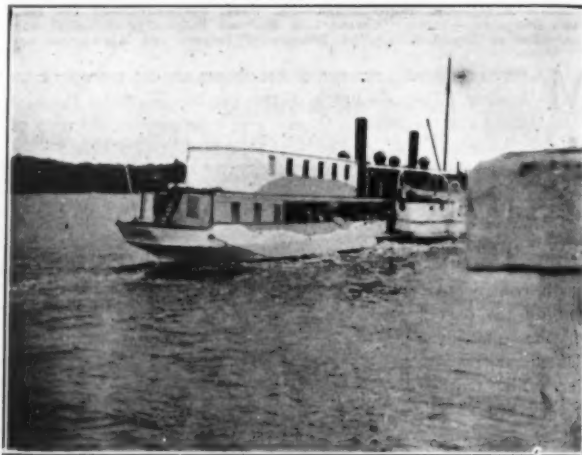
ORIGINAL *SAPIUM JENMANI* IN BOTANIC GARDENS.
[PLANTED BY MR. JENMAN, 1884-5.]

ule in a way that makes some of the twin-screw triumphs of more pretentious lines look very inefficient. We first went down the coast some five miles and out to sea a little, then turned into the mouth of the river, skirting the low-lying mainland on the left and a long verdure-covered island on the right. The shores were so low-lying with their fringe of man-

swamps, the palm-thatched huts standing on stilts above the river mud, and finally, Fort Island. Here was once the headquarters of the Dutch in this part of the world, and it was then that miles of what is now jungle, was exceedingly productive sugar land. The old brick fort still stands a picturesque ruin, its rusting cannon almost buried by grass and vines, and



GEORGETOWN HARBOR.



STEAMER "GUIANA" ON MAZARUNI RIVER.

groves on either side that, except for an occasional opening, giving a glimpse of an interior sugar estate, the scenery was not particularly varied. Along the mainland side, set in the shallow water some twenty feet out from the jungle, was a row of telegraph poles which extended for miles, the wires strung only a few feet above high water. The fact that such engineering was possible spoke eloquently for the stillness of the great river and of a very gentle rise and fall of tide.

Tuschen was the first stop. All to be seen was a wooden

just beyond it a little settlement of a dozen houses and a huge church.

Soon after we entered the foot-hills, the swamp growths disappeared and the beauties of the tropical uplands became apparent. Small settlements and plantations on either side of the river sent out boats for mail and parcels, and at three o'clock we passed Bartica, the principal settlement at the entrance to the gold fields.

Beyond, on the opposite shore and a little way up the Mazaruni



RUIN OF OLD DUTCH FORT, KYK-OVER-AL, MAZARUNI RIVER.

pier extending from the jungle-fringed land through half a mile of shallows, terminating in a little steamer landing and shed for storing goods. At eleven o'clock we were bidden to breakfast in the main saloon. The passengers grouped themselves at one end of a long board table, the middle of which was used for serving, while at the farther end dishwashing went busily on during the meal. The food was wholesome and abundant and all discussed it with good appetites. Then we returned to the deck chairs to smoke and view the mangrove



PUBLIC BUILDINGS.

river, is the Penal Settlement of the Colony. From the water front it shows substantial wharfs, massive stone buildings, well-tilled gardens, the whole protected from the river by substantial stone coping. The *Guiana* left us at their pier, which was patrolled by huge negro guards, who allow no one to land without a special permit.

A tent boat took us across the river from here, a half-hour journey, which ended in a little bay, on the shore of which stood the wife of the Sisal Man, who warmly welcomed us to "The

Hills," as their charmingly-situated bungalow was called. Here we made our home for several days and dwelt in exceeding comfort. The house, built on a cleared hill top, set up above the ground on substantial greenheart piers, fronted a river view that was rarely beautiful. The gentle breeze and the cleared land kept away the mosquitoes that might be found in the bush below. On the slopes of the gently-rolling hills about the plantation house were plantains, bananas, pineapples, paw-paw, and an infinite variety of fruits and vegetables, tropical and sub-tropical.



THE AUTHOR TAPPING A WILD "HEVEA."

Close to the house were flower beds containing almost everything in the way of flowers and shrubs that one could wish.

I have called our host the Sisal Man, because of the great fields of bayonet-leaved plants that he had planted there, and which were growing thriftily. He had also some rubber, not much, but just enough to prove that *Hevea* would grow there as well as elsewhere, something that he was delighted to know, for it is a curious feature of planting opinion that the man who is accustomed to the tilling of the flat alluvials does not believe that rolling highlands can by any possibility be cultivated. So, too, he of the uplands considers all lowlands as swampy, sour, and useful only for brick-making. The fact is, of course, that

Hevea will grow on flat lands or rolling lands at a variety of altitudes, if only good soil, plenty of moisture, a well-distributed and abundant rainfall, and a certain surface drainage were present, with, it goes without saying, a tropical temperature added. Of the journeys over the cleared lands, of excursions



PROFESSOR J. B. HARRISON, M.A., C.M.G., F.I.C., F.C.S.

through the jungle, up and down the river, of maps, photographs and interviews with those who know the Hinterland, there were many, and by the time we were obliged to return to Georgetown I felt somewhat acquainted with British Guiana. I forgot to say that we discovered a *Hevea* growing wild at "The Hills" and got both seeds and rubber from it.

To disassociate this *Hevea* from the *Brasiliensis* I called it the



COOLIE QUARTERS AT TUSCHEN.

Guaydnensis. From the product of the latex it was certain that it was not the former. Until some botanist shall examine it in flowering time it may be called *Guayanensis*, *confusa* *Spruceana* or almost any of the lower types without fear of successful contradiction. Nor does it matter much anyway.

On the day of our return to the city we rose at daybreak, as

indeed we always did, and dressed to the music of the roaring baboons in the nearby forest. We only went a part way down the river this time, getting off at Tuschen about noon. What a long walk that was up the pier and through a mile or more of coolie huts and sugar mills. On all sides were drained lands, the broad canals running as far as the eye could reach, and the noontide sun was hot.

After this walk, during which the shade from our helmets and umbrellas was most grateful, we reached the railroad and

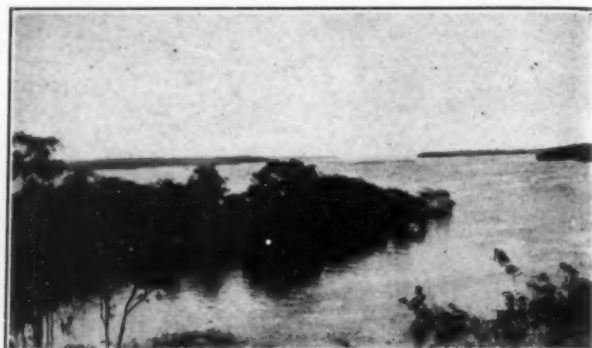
out as upon a map. The general planting was sugar cane and next came rice. Coolies were everywhere, working in the fields, grouped before their huts, observing queer festivals that seemed to be half baptismal and half musical, fishing, washing clothes in the sluggish canals, always busy and quietly happy. Their quarters were easily distinguishable even from the distance, as they have many small red flags on bamboo poles, the exact meaning of which I was unable to learn.

The sugar lands are not only very flat, but often only permit



CLEARED LAND ON THE MAZARUNI RIVER.

entered the tiny station reserved for the whites. I wanted a timetable and invited the worthy stationmaster to present me with one. He couldn't do that, however, as one comprised his whole stock. I might look at it if I wished and he handed me a pamphlet that I at once coveted. He was very polite, but no amount of persuasion or bribery could induce him to either give



THE MAZARUNI RIVER AS IT ENTERS THE ESSEQUIBO RIVER.

shallow drainage. In many of the great abandoned sugar estates the drains were choked with masses of water hyacinth in full and gorgeous bloom. Much money must have been spent in reclaiming this vast territory from the sea, and it is to be hoped that something agricultural may be found that will make it as prosperous as it once was. The railroad stations, such as



THE PENAL SETTLEMENT, MAZARUNI RIVER.

or sell it to me. He did finally agree to lend it to me until I came back and accepted the shilling that I tendered with much gratitude. When next I go to British Guiana I shall certainly return the pamphlet.

In order to get a good view of the country we took the up-train to the terminus of the road, which is Greenwich Park. So flat was it that going and coming from Tuschen to Greenwich Park and back to Vreed-en-Koop, everything was spread



YOUNG "HEVEA BRAZILIENSIS" AT "THE HILLS" ESTATE.

"Vreed-en-Koop" and the "Haguë," reminded one that it was the Dutch who first borrowed this land from the sea even if it is British territory today.

During our ride we saw considerable herds of water buffalo, feeding and wallowing in the muddy fields. It is said that only coolies are successful in handling them, as they show a violent antipathy for the whites. Of the birds that we noticed none were so beautiful as the Guiana robin, a scarlet-bodied, quick-

moving bird, that looked for all the world like our northern scarlet tanager. We passed the abandoned Windsor Forest Estate, that not long ago had 4,000 acres under cultivation and was very prosperous until the sea broke in and laid it waste. The extensive mill, administration building, and coolie quarters rapidly going to pieces and the land growing up to jungle; it was not a pleasant sight.

At Vreed-en-Koop we boarded the small side-wheel steamer *Amy*, were ferried across to Georgetown and as evening fell found ourselves quartered in the huge four-story wooden hotel that everybody said was "very bad," but which we found clean, quiet and comfortable. The servants, to be sure, were slow-footed blacks, good-natured, forgetful and easily confused. They were honest, however, and exceedingly grateful for even moderate tips. The city, which is twelve feet below the sea level, is well lighted, excellently policed and has an up-to-date electric car service of which it may well be proud. It is very hot in the middle of the day, but at nightfall the sea breeze brings comfort and the whole city gathers on the broad esplanade that runs parallel to the great sea wall and gossips and promenades and is content.

I would not have missed the visit to the botanical gardens for much. They are certainly fascinatingly beautiful, and



A BEAUTIFUL DRIVE IN THE BOTANICAL GARDEN.

whether or not one knows anything about palms, orchids, foliage plants or tropical flora, a visit is well worth while. An official from the Experiment Station took us out to see plots planted to *Hevea*, *Castilloa* and *Manibot* on flat undrained ground. The experiment was designed to show to owners of abandoned sugar estates that rubber must have a certain amount of drainage. Many of them need such instruction, for obsessed by the belief that the *Hevea Brasiliensis* if it had legs would wade out into the water and stand kneedeep if possible, they have planted in the drains and naturally the trees have died. These experimental plantings do not look healthy and no one expected they would. On the other hand down near the administration building are *Castilloas*, *Sapium* and *Heveas* from one to ten years' old with about four feet of drainage that are equal to any to be found anywhere. The department is doing everything it can to stimulate the interest of planters in rubber. It has imported seed and thousands of young *Heveas* are growing in Government nurseries, which are sold at cost to the planters. In addition to this, in order that the small farmers may be possessed of a few rubber trees, they have them displayed in the general market where the common people come daily. The result is that scores, who feel themselves too humble to visit the gardens, and if there would never dare to suggest a purchase, carry home one

or more seedlings and begin what may be a goodly plantation in embryo.

The *Sapium Jenmani*, which is indigenous to British Guiana, and which is really a beautiful tree that gives good rubber, is quite a favorite in this part of the world. Much is being done with it experimentally, and it is to be hoped that it proves itself commercially profitable.

England shows wonderful wisdom in her selection of men to administer the affairs of the various departments of her far-away possessions. When more than twenty years ago she sent Professor Harrison as Director of Science and Agriculture to British Guiana, she did not err in her choice. An athlete, as strong mentally as he is physically, with a string of letters after his name that tells of many degrees conferred by learned societies, with a broad knowledge of tropical conditions and needs, what he has done for the colony is beyond tabulation. When gold seemed the most important of the country's problems, he headed exploring parties that brought back and analyzed and classified rock specimens from all parts of the colony. His work in sugar cane, cocoa, cocoanuts, etc., etc., has been enormous and of the greatest value. And it is upon him that the rubber planter will depend for advice and help as the country turns to the extensive exploitation of that product, as it surely will.



BROAD CANAL IN GEORGETOWN FILLED WITH "VICTORIA REGIA."

I had a very pleasant hour and a half with him on the occasion of my first visit, and he showed himself fully alive to the importance of rubber culture. He had many samples of rubber from *Sapium*, *Castilloa* and *Hevea* and much balata, including the bastard balata, a product much like potto rubber. By the way, a Georgetown man has a process for making this plastic, of which he thinks a good deal. He is also interested in the production of banana rubber, of which I saw a small sample in the Georgetown Museum. It was about the consistence of reclaimed mat stock, but a trifle stickier.

The Governor was very busy governing while I was there, so I did not break in upon him. He, however, was good enough to write to a friend, saying that he had instructed the Department of Lands and Mines and the Botanical Department to present everything in the way of maps, books, photos and information that I might yearn for and they promptly and courteously complied.

Georgetown has one exhibit that no other city in the world can boast. Through the middle of one of the broad streets stretches for a mile or more a deep fresh-water canal. This from bank to bank is crowded with the huge brown-green leaves and fragrant pink blossoms of the *Victoria Regia*.

(TO BE CONTINUED.)

INDIA-RUBBER AND BALATA IN DUTCH GUIANA.

(By Our Regular Correspondent.)

THE issue of the Balata Compagnie Suriname, Limited, mentioned in my letter of last month, was oversubscribed in Rotterdam and Antwerp forty-three times. It is quite evident that the figures published in the prospectus of this company have induced many speculative green-horns to try their luck at this business. I hear already of several new ventures—somebody will have to pay for their experience. I have met here at least two parties who displayed great interest in our rubber plantations; some show disappointment when they find that they cannot buy planted rubber or rubber estates in full production. I must repeat that only the most advanced plantations have small quantities of tappable trees and that the exploitation of our wild rubber, the *Hevea Guyanensis* is still in the embryonic stage, the total quantity exported last year being not more than five hundred pounds. The few people who now know how to tap and make rubber would bring it to Paramaribo for 60 American cents per pound.

On the gold placer property of a French company, far up the Marowynne river, Le Société des Mines d'or de l'Awa, a beginning has been made with rubber exploitation. I saw the very first samples of their product, very nice *Guyanensis* rubber, prepared for them by a Brazilian seringero, who had contracted to work there as a gold digger. Of course he condemned every system of cutting except his own, herring-bone, spiral or whatever they might be, and proceeded to equip himself with a *machete* and a lot of little cups, baked Indian fashion and stuck to the tree with clay. At any rate, he satisfied himself and his employers, and arranged to go and look out for his family in his native country and bring them back with him to the Rawa placer, to make rubber. Extensive nurseries are laid out there for wild *Hevea Guyanensis* seedlings and also for plants from the genuine Pará seeds from Ceylon.

At plantation Clevia 1,600 *Castilloas*, six to seven years old, yielded 75 grams of dry rubber per tree for the first tapping. After the work was done, I ascertained that the laborers had tapped rather more than two quarters of the trees. It has not yet been ascertained how many times a year the trees may be tapped on this method. The wounds are healing nicely. So it is thought it can be done four times a year, but then not more than two quarters may be tapped at once. The second tapping to be done between the first cuts on the same quarters, and the third and fourth on the other quarters.

The cost of collection was 1 fl. per kg. (\$0.40 a kg.). A Javanese could tap about 10 trees a day for f. 0.60. It was the first experience, so they were very awkward.

The milk is very thick and does not run out of the cut. That is to say, some latex runs away, but it is so watery that it does not count. The rubber can be left to dry on the tree and collected some hours after tapping, or next day as a very pure scrap. Or the latex can be scraped with the finger or with a brush immediately after tapping into a tin can; diluted with about four times the amount of water and brought in liquid form to the factory to be washed and coagulated.

According to the latest figures made public by the government of Surinam, the number of laborers engaged in the balata collecting for the year 1909 was 1,448, and their collections amounted to 628 tons; in the year 1910, the number was 2,698, and they produced 893 tons of balata. The greater number of these laborers came from the adjacent British colonies.

The average production of one balata gatherer was 357 kilos (787 pounds) in 1909 and 331 kilos (729 pounds) in 1910, though there was one good balata bleeder who made over two tons by himself and several who obtained over a ton in a season. They really only work a small part of the year and when they are idling in Paramaribo, they do very little more than play on the

guitar and sing; no wonder their throats are dry. As a rule, however, and when at work, these people may be called sober. The Javanese laborers are turning out to be very careful tappers and are quite content when they can earn 20 to 30 American cents a day. This week one of the immigrant steamers carried back to Calcutta 600 coolies who have served out one or more contracts of five years on the estates. One cannot but be amazed at their saving capacity. Their average earnings, as a rule, are a dollar a week, out of which they must pay for their food and clothing. Nevertheless these returning coolies carried with them 57,995 florins [= \$23,319], besides jewelry worth 10,800 florins [= \$4,341].

It may interest you to know that the revenue of the Surinam government for 1910, was 372,500 florins [= \$149,544] more than was expected. Of this amount 121,000 florins [= \$48,642] was for taxes and payments on balata concessions.

A NEW "CASTILLOA" TAPPING DEVICE.

THIS is a small hammer, of which one side is changed into a curved knife with the cutting edge turned downwards. The wooden handle has just the same length as an ordinary hammer. The cut made in the bark of the tree is so large that a man's finger can be inserted into it.



"CASTILLOA" TAPPING TOOL.

The knife is used in the manner of a tree-marker, but for tapping it has the advantage over an ordinary tree-marker that the pull is given in the very same direction of the cut and that the weight of the hammer gives weight to the stroke so that the knife does not stop half way in the bark, but gives a smooth, clean cut. With a small pocket whetstone, the edge of the knife may be kept exceedingly sharp. In tapping, the circumference of the tree is divided into four equal parts. The tapping is conducted on two such parts opposite each other at once. The cuts are made with the hammer knife at equal distances of about one foot, the one above the other, each cut being parallel with the former and running aslant over the part to be tapped. In this way the trees are tapped from the base to as high as the laborers can reach. With a ladder they can get to 15 to 20 feet. [Invented by J. W. Gonggrijp, Paramaribo, Dutch Guiana.]

THE SEVENTEENTH VOLUME OF THE YEAR BOOK (1910) of the United States Department of Agriculture, will shortly be published. A voluminous publication, of nearly 600 pages, it contains, in addition to a general report on the operations of the department, a number of articles contributed mainly by members of its scientific force, treating on important questions at present occupying the attention of the public and relating to food supply, forestry, agriculture, good roads, etc. There are 49 full page illustrations in the report, of which eight are colored, while the statistical appendix is a remarkably complete presentation of agricultural conditions in the United States. The volume is distributed principally by Senators and members of Congress, to whom early application should be made by those desirous of securing a copy.

SEND for Index (free) to Mr. Pearson's "Crude Rubber and Compounding Ingredients."

The India-Rubber Trade in Great Britain.

By Our Regular Correspondent.

EXCEPT for the excursionist from the country, there can be little doubt that June or July are more suitable months for an exhibition in London than September, in which month people are widely scattered on holiday tours and London is generally supposed to be half empty. No doubt to a good

THE EXHIBITION.

many prospective visitors with well-filled purses, the fact that the date of this year's exhibition synchronises with the Coronation festivities is matter for congratulation. There are others, however, and among them small shareholders in wild-cat two-shilling rubber companies, who have to consider closely their personal expenditures and who are haunted by the fear of exorbitant hotel charges or of failure to obtain accommodation at all. Though, of course, the London season, unlike what corresponds to it in the Continental capitals, does not end until the close of July, yet there is sure to be a large exodus of Coronation visitors early in the month and I do not suppose that, at any rate for the last week of the Exhibition, visitors from the country need go in dread of having to walk the streets. By the way, it would be a great convenience to many visitors if a list could be kept of names and addresses of prominent rubber men from abroad who are in London for the Exhibition. This would of course entail extra work which might be carried out by some out-of-work clerk so as not to put further strain on the mental temperament of the manager and secretary. It is bound to happen in some cases, that where two men wish to meet and renew an old acquaintance, one will have left London before the other arrives or they may only miss meeting by attending at the Hall at different hours. In the latter case the list I have suggested would enable the telephone or post to be used with the desired result. The visitors should be classified as Americans, Germans, French, etc. No further information should be given or else the list will be used by strangers for business purposes instead of being simply to facilitate the meeting of acquaintances or at any rate of those who know one another by repute.

It is announced that the Margett International Sectional Tyre Co., Limited, have taken premises for a factory at Newton, near Hyde, some seven miles to the east of Manchester. The intention is to manufacture their tires, which so far have been made on contract by certain rubber manufacturers. The Margett company, which, as a syndicate, has been in existence some little time, was brought out last January as a private limited company with a capital of £250,000. The tire is a pneumatic motor tire made in sections of 18 inches each, any of which can be replaced if damaged. Though somewhat on the lines of the Hartredge tire as far as replacement in part is concerned, it will be remembered that the latter was a solid tire and of more numerous sections. The Margett tire has for some time been undergoing extensive road trials and it is to be hoped that the metropolitan police authorities will not drop on it as they did on the Hartredge, which was convicted of cutting up the roadways. The works are expected to be ready for manufacturing in July. The two permanent directors are A. P. Ford-Moore and D. Ampleford, the office being at 56 Moorgate street, London, E. C.

The contract for the supply of Fiat tires for the current year has been placed with Charles Macintosh & Co., Limited. These tires are being largely used in London, and must not be confounded with the K. T. tire, which is being brought out by another London company and is having extended trials in Paris.

The handsome new offices and stores of the Continental Tyre

and Rubber Co. (Great Britain), Limited, in Brompton Road, London, are now ready for occupation and the same may be said of the new premises at Milton Buildings, Deansgate, Manchester, the new home of the local depot. Milton Buildings is also to be the locale of the Manchester offices of Almagam, Limited, motor tire manufacturers.

At 38 Deansgate is to be found the new depot of the Pirelli Tyre, a move having been made from Corporation street.

An illustrated communication on this subject by A. Chaplet and H. Roussel has recently appeared in *Le Caoutchouc et*

THE DERESINATION OF RUBBER.

la Gutta-Percha and it gives a useful summary of the patents taken out for this purpose. The subject has long been attractive to inventors, though I have never shared the optimism of those who foretold great advantages to accrue to the rubber trade by systematic deresinification of the various brands of rubber known to commerce. Since the establishment of the Malaysian Rubber Co.'s works at Borneo, to deal with jelutong on a large scale, the process has of course passed the experimental or desultory stage, though I do not know whether its commercial success has yet been testified to in the form of a satisfactory balance sheet. Since the Goebilt works commenced operations one or two short patents have been taken out with the same object in view, but I am not in possession of any figures testifying to their financial success. On the general question the above authors make the interesting remark that the very resinous rubbers are frequently the product of a latex which contains other impurities such as albuminoids and oxydases, which still remain in the rubber after deresinification tending to depreciate its value, and they refer to the further treatment which has been found necessary to obviate the danger of premature decay in the extracted rubber. The Malaysian company's product has now been on the market some time and there should be plenty of evidence as to its value and stability. The guayule producers, after perfecting a process of deresinification, have abandoned it and sell their product with its high resin content intact.

A paper entitled "Contribution to the Application of Artificial Cold to the Commerce and Industry of Caoutchouc" was presented at the International Congress of

REFRIGERATION IN THE RUBBER INDUSTRY.

Refrigeration at Vienna in October last by M. Jean Boutaric, of Paris. I have only recently had an opportunity of reading the rather lengthy paper in full, hence the delay in these observations on it. The main impression left on me by its perusal is that the word "application" in the title should have been modified into "suggested application" because, although the paper is full of proposals for the utilization of artificial cold in the industry, there is only one reference, and that a very brief one, to its application. This has reference to fine cut sheet. Among the suggested applications of cold are the freezing of raw rubber to prevent decay or tackiness; the cooling instead of heating of the air in rubber drying stoves; the freezing of rubber scrap to facilitate its comminution in the regenerated rubber industry, and the artificial cooling of rooms where vulcanized rubber goods are stored. A description of a naphtha recovery plant is also given, where the recovery is 50 per cent. with the condenser water at about 60 deg. F. It is suggested in the paper that a better recovery might be obtained if the water were artificially cooled to freezing point. It has of course, I may say, been the general rule to cool down the condenser water by refrigerating machinery in English recovery plants. Although, of course, the paper is interesting as throwing out free suggestions as to improvements in the in-

dust, it would have been much more so if it had contained the results of experiments testifying to any prospective advantages. The members of the Congress were very largely men interested in the preservation and transportation of food stuffs and there would probably not be half a dozen present who would be interested in the paper—except perhaps the refrigerating machinery manufacturers. With regard to cut sheet, I have never heard it suggested that the freezing of the blocks had any effect on the quality or life of the rubber. Such solidification is necessitated in order that the cutting process may be effectively carried out. If the freezing improves the rubber, how is it that the sheets produced from blocks solidified in the air on a cold winter day are considered if anything superior to those which have experienced a lower temperature as the result of artificial refrigeration? The suggestion to cool down the storerooms where rubber goods are kept strikes me as the most important suggestion in the paper, and a cheap way of testing this would be to enlist the sympathy and services of some engineer connected with one of the Siberian placer gold mines. With a box of selected rubber goods to keep under observation he would have a mental stimulant to while away the tedium of enforced inactivity above ground.

Sir Edward Tennant, Bart., whose name appears in the list of vice-presidents of the Rubber Exhibition, is now entitled to a slightly higher place on the list as he has recently been raised to the peerage under the title of Lord Glenconner.

BREVITIES.

His father, Sir Charles Tennant, Bart., was prominently connected with the alkali trade at Glasgow and with the very successful Indian gold mines.

Sir H. H. Johnston, K. C. B., C. M. G., another vice-president, has very readable articles in the April numbers of two of what are usually considered the "heavy" reviews. In *The Nineteenth Century and After* he discourses on "The Seamy Side of Travel" to which no doubt the editor of THE INDIA RUBBER WORLD could add something from his experiences in the tropics. His second and more important article is in the *Quarterly Review* and is entitled "The Preservation of Fauna and Flora." It is to be hoped that this article will receive more than passing attention from those who are in a position to aid in the reforms advocated though I am afraid that there is not much to be expected from the sportsmen whose operations he, in my opinion, so justly denounces. Probably the *Quarterly Review* has not a very large circulation in African or Asiatic rubber planting

sections, so these few lines of reference to the subject can hardly be considered superfluous.

Connolly Bros., Limited, of Vale Mills, Blackley, near Manchester, have become involved in financial difficulties and a receiver has been appointed. The business, which is an old established one, is concerned with the production of rubber insulated wires of the smaller diameters. The firm were not actually rubber manufacturers but contracted for their varied rubber requirements with rubber manufacturers, a course of procedure followed by other firms in competition with them.

The works of Hutchinson, Main & Co., Limited, of Springvale, Glasgow, are offered for sale by auction. This announcement was made shortly after the decision in the legal case referred to in these notes last month.

With reference to the action brought against the Rubber Regenerating Co., Limited, Manchester, England, by the North-western Rubber Co., Limited, Litherland, England, THE INDIA RUBBER WORLD is advised that the matter has been settled without being brought into court—that is, satisfactorily to all concerned, and that both companies will continue along the same lines as heretofore. Incidentally, our English correspondent referred to the general manager as Mr. Mamsick, evidently meaning M. H. MacKusick.

BRIEF NOTES FROM JAPAN.

M. Yoshida, manager of the important Japanese rubber manufacturing company, The Asahi Gomu Co., Limited, of Tokyo, has gone to the Federated Malay States, taking with him a number of his associates, to take up land and plant *Hevea* for his company. This to our knowledge is the third enterprising rubber company in Japan that has taken measures to plant *Pará* rubber, and thus assure a cheap and constant supply, no matter how the market goes.

K. Takahashi, rubber expert for the Kashima Gomu Co., Tokyo, is the inventor of a machine for cutting rubber thread.

An association of Japanese rubber manufacturers has been formed with a title which translated literally means "Japan Rubber-Business-Circle." It has some 70 members.—*The Gomu Shimpō*.

JAPANESE IMPORTS OF INDIA-RUBBER.

[From the *Gomu Shimpō*.]

	1908.		1909.		1910.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
Crude Rubber	779,647 kin 1,033,032 pounds	886,578 yen \$441,516	998,870 kin 1,321,463 pounds	1,465,292 yen \$729,715	1,193,146 kin 1,580,918 pounds	3,042,396 yen \$1,515,093
Rubber Boots	28,307 pairs	80,381 yen \$40,030	8,975 pairs	21,622 yen \$10,768	3,090 pairs	11,650 yen \$5,802
Rubber Shoes	30,066 pairs	38,215 yen \$19,031	24,337 pairs	24,763 yen \$12,332	16,625 pairs	14,761 yen \$7,351
Belting and Hose	131,630 kin 174,410 pounds	117,369 yen \$58,449	69,106 kin 91,566 pounds	57,464 yen \$28,619	67,960 kin 90,047 pounds	59,244 yen \$29,504
Cables, Insulated	1,826,660 kin 2,420,324 pounds	420,277 yen \$209,297	2,040,789 kin 2,704,045 pounds	358,617 yen \$178,591	7,295,988 kin 9,667,184 pounds	1,594,923 yen \$794,272
Insulated Wire	3,592,575 kin 4,760,361 pounds	1,446,852 yen \$720,530	4,477,797 kin 5,933,081 pounds	1,517,017 yen \$755,474	5,386,662 kin 7,137,327 pounds	1,637,381 yen \$815,416
Waterproof Cloth	212,928 yards	126,123 yen \$62,809	280,120 yards	173,248 yen \$86,278	297,329 yards	184,567 yen \$91,914
Engine Packing	549,071 kin 727,519 pounds	286,286 yen \$142,570	430,069 kin 569,841 pounds	228,444 yen \$113,765	629,888 kin 834,602 pounds	342,586 yen \$170,608
Plates and Sheets, Hard Rubber	31,034 kin 41,130 pounds	62,367 yen \$31,059	45,448 kin 60,268 pounds	99,473 yen \$49,538	74,195 kin 98,308 pounds	160,178 yen \$79,769
Tubes and Rods, Hard Rubber.	45,455 kin 60,228 pounds	164,326 yen \$81,848	33,176 kin 43,958 pounds	127,721 yen \$63,605	35,309 kin 46,784 pounds	93,535 yen \$46,580

A Last Word Before the Exhibition Opens

SIR HENRY ARTHUR BLAKE, G.C.M.G., President of the International Rubber Exhibition, is peculiarly fitted for his important position. His government work for years was in the tropics. As Governor of Jamaica, of Ceylon, of Hongkong, he did notable work. As a presiding officer his dignity, wit, and eloquence are rarely equalled.

The work of organization and its infinite detail are all handled easily and successfully by Mr. A. Staines Manders, the organizing manager. Mr. Manders was early in life a newspaper man, but drifted into the management of government and public exhibitions. He found a fitting field in London, the city of exhibitions, and from one year's end to the other has something of interest, of educational value, and of success to attract the public.

While the visiting rubber men will meet and know Sir Henry Blake and appreciate Mr. Manders' ability, it will be to the secretary of the exhibition, Miss D. Fulton, that the details of

For Americans, or visitors other than English, it is sufficient to say that the general offices of the exhibition are at 75 Chancery lane (Holborn), London, where every courtesy will be extended to those visiting the exhibition.

FREAKS OF FOOTWEAR.

THE philosopher who is interested in the progress of the human family, often permits himself great satisfaction in recalling certain human follies of the past and in asseverating that mankind has now become too sane and settled ever again to revert to these particular exhibitions of un wisdom. But you can't always tell what mankind will do.

Men whose personal recollections or historical researches carry them back to the middle fifties, will recall the "Duck Bill" toe, affected by the advanced dressers of those days. It was an impossible, not to say satanic, shoe, with a toe



A. STAINES MANDERS.
Organizing Manager.



SIR HENRY ARTHUR BLAKE, G.C.M.G.
President.



MISS D. FULTON.
Secretary.

[Photographs by Kate Pragnell.]

their many necessities will be referred, and that quiet, modest, level-headed little English woman will prove herself capable of coping with and settling any exhibition question.

It must be remembered that this exhibition is to be much larger and infinitely more informing than was the first.

Foreign governments have taken a keen interest in it, and are not only sending representatives, but putting in costly exhibits. From the Americas, Brazil will have a notable exhibit; the West Indies, British Guiana, and Trinidad will be adequately represented, while from the tropical colonial possessions of Great Britain, Holland, France, and Germany, will come tons of crude rubbers, gutta-percha, plantation rubber, etc., etc.

To the men interested in rubber culture a great number of planters have tapping tools and machines for coagulating and drying, which will be of exceeding interest.

To those who yearn for excellence in product or new inventions, the artistic trophies to be awarded will be of paramount interest. In addition, there will be exhibits of manufactured rubber goods, American, English, German, French, Belgian; banquets of various societies, lectures, publications, indeed, the whole exhibition will be a round-up of practically everything modern in crude and manufactured rubber.

that first grew narrow, and then flared out much wider than the rest of the shoe, at the same time extending from one to three inches beyond the foot. Of course, the rubber men had to produce goods to fit these freaks, but that was not their fault, though distinctly their misfortune.

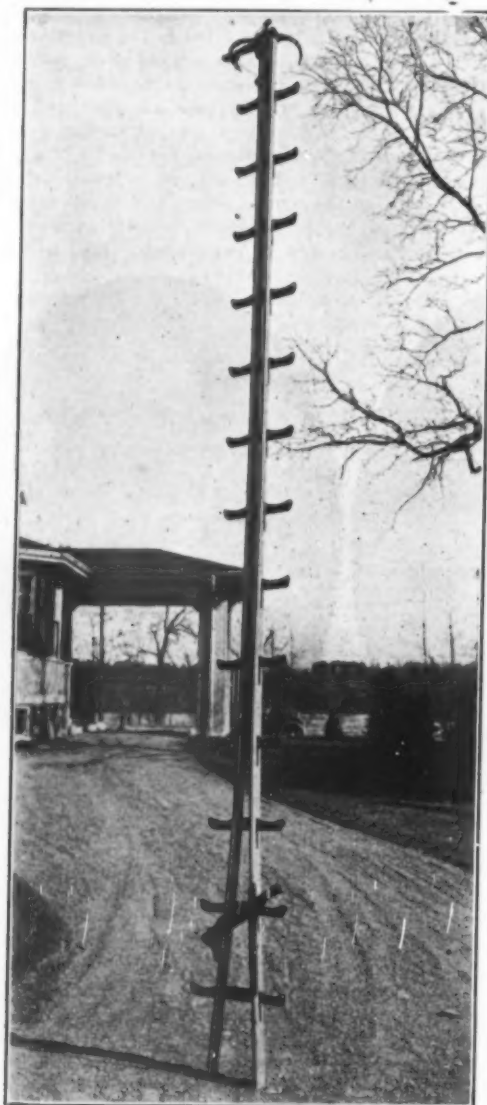
You would certainly say that it was a safe conjecture that no such pedal monstrosity could reappear in this day of acute reasoning and general uplift. Perhaps it could not; but have you seen the "Rhino Toe"—happily named from its resemblance to the forward part of the rhinoceros? This toe instead of widening like the old "Duck Bill" of our grandfathers, rises majestically into the air. To any one whose five toes are grouped perpendicularly instead of in the usual horizontal arrangement, the "Rhino" must certainly prove a boon; but to the normal man it is a sad freak.

The purpose of this paragraph, however, is not to animadvert upon human frailties, but to call attention to the alertness of the rubber footwear manufacturers, practically all of whom are out with samples of "Rhino Toe" rubbers, which is most praiseworthy, for obviously it is theirs not to argue with the vagaries of fashion, but to match every leather shoe with its rubber equivalent.

HIGH TAPPING OF CASTILLOAS.

THE Mutual Rubber Production Co., No. 1, who operate *Castilloa* plantation at Chiapas, Tabasco, Mexico, have already planted 50,000 cocoanut trees and have a nursery of 75,000 more. After careful examination the Graves Brothers, who operate the plantation, have discovered that there is excellent profit in cocoa in the location named, and expect to find it a profitable adjunct to rubber.

Few planters of *Castilloa* have worked harder to solve the



LADDER FOR HIGH TAPPING "CASTILLOA."

tapping problem than have the Graves brothers. They have experimented on both wild and planted trees. For example, they tapped 300 wild trees of varying sizes from 8 inches in diameter upwards last year, tapping them three times, and actually secured an average of a pound of rubber per tree. They have found that they can tap the tree up to 25 feet from the ground and perhaps higher and that the latex from the upper reaches of the tree is almost as abundant and as rich as it is nearer the ground. The illustration shows a special truss ladder that they have designed for this tapping.

SOME RUBBER INTERESTS IN EUROPE.

GREAT BRITAIN.

THE employees of the India Rubber Gutta Percha and Telegraph Works Co., Ltd., of Silvertown, London, E., have an athletic club, known as the Silvertown Rubber Works Athletic Club. They recently held their first annual sports meeting, quite a number of events being contested and the Graysilver Military Band furnishing the music for the occasion.

THE Midland Rubber Company, Ltd., Birmingham, contemplates a considerable enlargement of its factory, and for this purpose has increased its capital from £28,000 to £80,000 [=£389,320.]

Victoria Rubber Co., Ltd., Edinburgh, Scotland, with a working capital of £60,000 [=£291,000], made a profit, last year, of £6,376 [=£29,828], from which a dividend of 7½ per cent. was declared. The sales increased considerably, but owing to the speculative movement in crude rubber, the profits had not kept pace with them.

The Anglo-Continental Rubber Co. has been founded, with offices at 5 New Brown street, Manchester.

GERMANY.

THE Kabel und Gummiwerk Eupen, at a meeting of stockholders, increased its capital to 400,000 marks [=£95,200].

Deutsche Kabelwerke Akt. Ges., Berlin. The regular general meeting declared a dividend of 8 per cent. and elected Wilhelm Kleeman, of the Dresden Bank, a member of the Board of Directors.

Land und Seekabelwerke, Cologne-Nippes, in consequence of a falling off in profits reduced the dividend from 8 to 5 per cent. Fluctuations in the cost of raw materials are given as the cause for the reduction.

Rheinische Gummi und Celluloid Fabrik, Mannheim-Neckarau had a net profit of 2,789,638 marks [=£663,933] to report for 1910, compared with 2,512,672 marks for the preceding year.

Oldenburgische Auto-Bereifungs-Austalt "Anker," Varel, Oldenburg, has been commercially registered, and will manufacture non-skid tires. H. Hische and B. Lewin, Varel, are proprietors.

Hannoversche Gummi-Kaumm Co., at their general meeting, after disposing of routine affairs, fixed the dividend, for last year, at 25 per cent. and decided to increase the capital 500,000 marks [=£119,000], the increase to be entitled to half dividends for 1911.

Supplementing the notice in the April 1 number of THE INDIA RUBBER WORLD, of the formation of the firm of Julius Roempler, A.-G., rubber manufacturers, Zeulenroda, it may be stated that the members of the Board of Directors are Bank Director Max Reimer, Dresden, and Bank Director Wilhelm Böttger, Plauen i. V.

ASBEST UND GUMMIWERKE ALFRED CALMON A. G.

Asbest und Gummiwerke Alfred Calmon, Aktiengesellschaft, Hamburg, held its regular general meeting on May 10, on which occasion a report for the fifteenth business year was presented. For the second time in the history of the concern the report showed a gross loss amounting, on this occasion, to 1,566,645 marks, and deducting the balance of profits from 1909 and the reserve account, a net loss of \$644,505.21. Reasons for the falling off are given in detail in the report, which concludes with the hope that the period of sacrifices for the introduction of the company's goods being passed and the sales on a steady increase, better things are to be hoped for in the future.

NORWAY.

THE firm of Jacobsen & Braastad, manufacturers of men's and boys' furnishings (founded in 1893; proprietors: O. H. Jacobsen and M. A. Braastad), has taken up the manufacture of rubber clothing.

Recent Patents Relating to Rubber.

UNITED STATES OF AMERICA.

ISSUED APRIL 4, 1911.

- N O. 988,295. Vulcanizer press. A. Adamson, Akron, O.
 988,305. Tire-holder. W. F. Bright, Springfield, Mass.
 988,318. Cushion-tire. C. L. Drake, St. Louis, Mo.
 988,361. Vulcanizer. T. G. Lewis, assignor to The Buffalo Dental Mfg. Co.—both of Buffalo, N. Y.
 988,384. Hose. G. E. Preston, assignor of one-half to G. S. Wood—both of Chicago, Ill.
 988,475. Tire. W. A. Koneman, Chicago, Ill.
 988,766. Reel for hose. J. Frigon, Barre, Vt.
 988,833. Packing ring. C. H. Steves, assignor of one-half to A. E. Peterson—both of Grand Rapids, Mich.
 988,890. Tire rim. F. M. Miller and A. F. Steyer, Pontiac, Mich.

ISSUED APRIL 11, 1911.

- 988,997. Vehicle tire. J. G. Funk, Swissvale, Pa.
 989,049. Vehicle wheel. R. Reininger, Newark, N. J.
 989,089. Rubber boot or shoe. A. D. Warner, Mishawaka, Ind.
 989,171. Adjustable elastic support for concave and flat feet. J. May, Frankfurt-on-the-Main, Germany.
 989,177. Elastic core for packing material. A. Montgomery, Newton, Mass., assignor to American Steam Packing Co., Boston, Mass.
 989,228. Metallic Packing. J. Bowie, Omaha, Neb.
 989,230. Eraser attachment for typewriting machines. L. A. Carter, Oakland, and William J. Halden, Berkeley, Cal., assignors of one-third to G. E. Allen, Mill Valley, Cal.
 989,251. Hose coupling. E. S. Hall, Arcade, N. Y.
 989,332. Vehicle tire. A. P. Burrus, Prescott, Ark.
 989,382. Hose clamp and support. A. R. McCormick, Calumet, Mich.
 989,386. Hose attachment. H. H. Miller, Valparaiso, Ind.
 989,431. Vehicle wheel tire. A. T. Scaramuzzi, Paterson, N. J.
 989,494. Detachable wheel rim. A. D. Foucart, Muncy, Pa.
 989,514. Suction thread. J. R. Sanford, assignor to The Flexible Rubber Goods Co.—both of Salisbury, Conn.

ISSUED APRIL 18, 1911.

- 989,572. Boot and shoe. W. L. Dash, South Tottenham, England.
 989,621. Ice bag. V. C. Madigan, Columbus, Ohio.
 989,673. Cushion heel. W. B. Watson, Keene, N. H.
 989,855. Hose-clamp-applying tool. M. C. Lewis, New York.
 989,952. Conveyor belt. N. S. Dodge, Alameda, Cal.
 989,967. Rubber fabric. F. A. Headson, Milwaukee, Wis.
 989,973. Spring vehicle tire. E. Hess, Chicago, Ill.
 989,985. Elastic webbing. W. Kops, assignor to Kops Bros., both of New York.
 990,046. Tire protector. R. G. Hartle, New Madrid, Mo.
 990,094. Boot or shoe heel. N. R. Arnold, New York.
Trade Marks.
 40,657. Peerless Rubber Manufacturing Co., New Durham, N. J. The word *Royal*. For hose.
 40,660. Peerless Rubber Manufacturing Co., New Durham, N. J. The word *Durham*. For packing.
 40,661. Peerless Rubber Manufacturing Co., New Durham, N. J. The word *Success*. For packing.
 48,202. Boston Belting Co., Boston, Mass. The word *Elskin* over a representation of an eel in an oval. For textile belting.
 51,521. Hood Rubber Co., East Watertown, Mass. The word *Dirie*. For footwear.

ISSUED APRIL 25, 1911.

- 990,214. Tire. E. P. Beach, Freehold, N. J.
 990,350. Tire. S. Ziana de Ferranti, Grindelford, England.
 990,387. Tire remover. S. C. Plant, Brookline, Mass.
 990,392. Tire building machine. R. Rowley, New York.
 990,456. Automobile tire. H. E. Rechner, East Toledo, Ohio.
 990,587. Rod packing. G. C. Potts and P. E. Weaver, Chicago, Ill.
 990,609. Automobile tire. G. E. Tomlinson, Winchester, Ky.
 990,649. Vehicle wheel. J. H. Hardwick, assignor of twenty-four-one-hundredths to J. C. McKenzie, and twenty-four-one-hundredths to J. L. Clark, all of Cleveland, Tenn.
 990,651. Wheel anti-skidder. H. Heer, Ogden, Kansas.
 990,664. Vehicle wheel tire. H. Mulholland, New York.
 990,788. Resilient wheel. W. J. Smith, assignor of one-half to W. S. Hennessy, Jr., both of Boston, Mass.
Designs.
 41,330. Hoof pad. E. A. J. Leahy, assignor to Regal Hoof Pad Co., both of New York.

Trade Marks.

- 49,890. The Canfield Rubber Co., Bridgeport, Conn. The word *Redtex*. For plumber's rubber goods.

[NOTE.—Printed copies of specifications of United States patents may be obtained from THE INDIA RUBBER WORLD office at ten cents each postpaid.]

GREAT BRITAIN AND IRELAND.

PATENT SPECIFICATIONS PUBLISHED.

The number given is that assigned to the Patent at the filing of the application, which in the case of these listed below was in 1909.

*Denotes Patents for American Inventions.

- [ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, APRIL 5, 1911.]
 28,483 (1909). Vehicle wheel tires. L. Liais, Paris, France.
 28,485 (1909). Pneumatic for soles. E. Maddocks and J. McNair, Toronto, Canada.
 28,593 (1909). Typewriters; plastic composition. W. Fairweather, London.
 28,613 (1909). Artificial india-rubber. A. A. W. Grist, London.
 28,622 (1909). Rubber sole for boots, etc. L. W. Dash, London.
 28,662 (1909). Vehicle wheels. T. E. Bridgman, Swansea, Wales.
 28,674 (1909). Vehicle wheels. C. H. Thompson, Amblecote, Stourbridge, Worcestershire.
 28,832 (1909). Vehicle wheel tires. E. L. Peraux, London.
 28,862 (1909). Vulcanizing india-rubber. A. Dales, Manchester.
 28,924 (1909). Rubber heel protectors. A. Roberts, London.
 28,965 (1909). Vehicle wheels. C. Burnett, Durham.
 29,030 (1909). Vehicle wheel tires. W. Frost, London.
 28,102 (1909). Vehicle wheel tires. G. K. Beldam, London.
 29,115 (1909). Vehicle wheel tires. W. von Nottbeck, St. Petersburg, Russia.

- [ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, APRIL 12, 1911.]
 29,359 (1909). Vehicle wheel tires. I. S. McGilham, London.
 29,395 (1909). Tapping rubber trees, etc. R. W. Cater and G. V. A. Schofield, London.
 29,410 (1909). Vehicle wheels. C. Lee, Birmingham.
 29,497 (1909). Vehicle wheel tires. P. Stephan, Krieter, near Breslau, Germany.
 29,614 (1909). Vehicle wheel tires. T. L. Bell, Wylam Northumberland, England.
 29,632 (1909). Vehicle wheel tires. H. Beien, Wald, Prussia.
 29,635 (1909). Vehicle wheel tires. J. G. A. Kitchen, Scotforth, Lancaster, and I. H. Storey, Loughrigg Brow, Ambleside, Westmoreland.

- [ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, APRIL 19, 1911.]
 25,330 (1909). Vehicle wheel tires. V. B. Hill, London.
 29,864 (1909). Devulcanizing rubber. C. Dreyfus, Claremont, Fallowfield; A. Friedl, Victoria Park, Manchester; W. H. Bentley, Irlam, Lancashire, and Clayton Aniline Co., Clayton, near Manchester.
 29,961 (1909). Lasting boots, etc. J. Party, Paris, France.
 30,129 (1909). Vehicle wheel tires. J. Bloomfield, and J. Cracknell, Beccles, Suffolk.
 30,146 (1909). Vehicle wheels. A. E. J. Smith, London.
 30,274 (1909). Tire valves. North British Rubber Co., and A. Johnson, Edinburgh, Scotland.
 30,300 (1909). Vehicle wheel tires. J. A. Legh, Ambleside, Westmoreland.
 30,489 (1909). Vehicle wheel tires. R. K. Evans, London.
 30,499 (1909). Vehicle wheels. H. Patard, Paris, France.
 *30,513 (1909). Vehicle wheels. A. Dow, New York.

- [ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, APRIL 26, 1911.]
 169 (1910). Vehicle wheels. T. R. Shelley, Birmingham.
 259 (1910). Wheel tires. A. E. Walkden, Liscard, Cheshire.
 341 (1910). Drying sheet rubber, etc. T. Cockerill, Colombo, Ceylon.

THE FRENCH REPUBLIC.

PATENTS ISSUED (with Dates of Application).

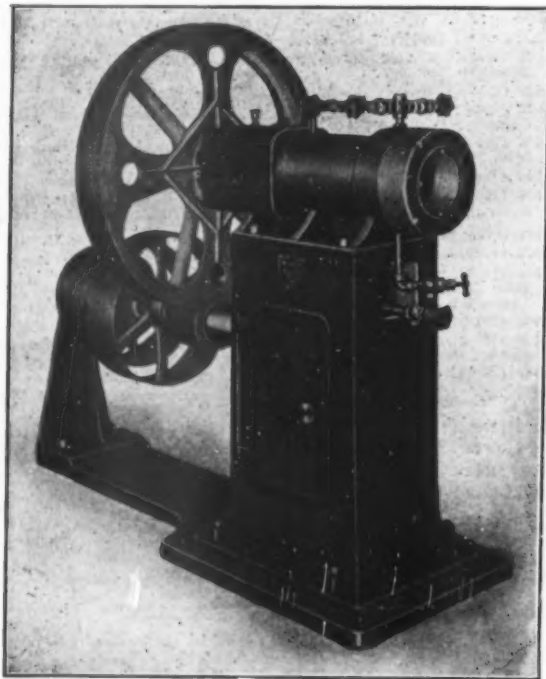
- 421,650 (October 20, 1910). Wilhelm Pahl. Process for coagulating the lactiferous sap or latex of caoutchouciferous plants.
 421,688 (October 5). A. Deslotrieve. New pneumatic casing for automobiles, carriages, etc.
 421,698 (October 18). H. Pont. Imperforable protector for pneumatic tires.
 421,739 (October 22). L. David. Pneumatic tire, with casing attached by air pressure, independent from that in the inner tube.
 421,775 (October 24). J. Brown. Improvement in tires for vehicle wheels.
 421,816 (October 25). J. Guerrero. Elastic tire for vehicle wheels.
 421,932 (October 28). C. M. Gautier. Improvements applied to machines employed in the manufacture of tires and wheels.
 421,935 (January 5). T. Gratioux, fils. Process of manufacturing tight gas tubes, made with a flexible metallic tube, enveloped in a rubber covering.
 421,945 (October 28). Société Charles Harti, père et fils. Elastic and adjustable retaining ring for braces, stocking suspenders and other purposes.
 422,008 (January 8). C. Damian and E. Porteret. Non-skidding tire for wheels of vehicles.
 422,052 (November 2). J. G. A. Kitchen and J. H. Storey. Pneumatic tire.
 422,057 (November 2). F. Rosdorff. Protective casing for pneumatic tires.

- 422,118 (January 11). H. Dogny and V. Henri. Process of manufacturing spongy rubber.
 422,171 (October 22). G. V. de Luca. Improvements applied to pneumatic tires.
 422,246 (November 3). J. Stercka. process of strengthening ebonite or hard rubber, so as to make it unbreakable.
 422,262 (November 7). A. Turnbull. Wheel and auxiliary tire for vehicles.
 422,274 (November 7). F. Lissner. Armor for casing of pneumatic tire.
 422,310 (November 8). C. H. Genth. Elastic tire for vehicle wheels.
 422,332 (November 5). T. L. Lafoy. Pneumatic tire for wheels.
 422,342 (November 9). Society entitled The Crude Rubber Washing Company, Limited, and Messrs. Dessau. Apparatus for eliminating foreign substances from caoutchouc, gutta-percha, balata and other analogous substances.
 422,402 (November 11). Society entitled The Crude Rubber Washing Co., Limited, and Messrs. Dessau. Apparatus for removing foreign substances from caoutchouc, gutta-percha, balata and other similar substances.

[NOTE.—Printed copies of specifications of French patents can be obtained from R. Robet, Ingénieur-Conseil, 16 avenue de Villier, Paris, at 50 cents each, postpaid.]

IMPROVED RUBBER TUBING MACHINE.

THE machine illustrated herewith may be used for making a great variety of rubber goods, including carriage tires, hose and for the preparation of stock for moulded goods. Very compact and rigid and self-contained, it stands on a single, solid-base plate, so that perfect alignment is assured.



RUBBER TUBING MACHINE.

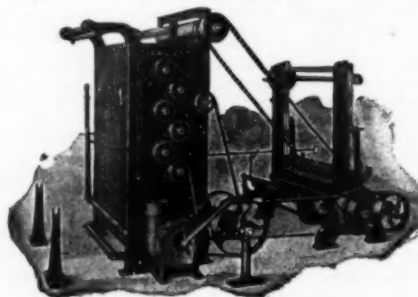
The gears are machine cut, the pinion of steel and the large wheel cast iron. The thrust from the screw, acts directly against a head which is bolted fast to the cylinder of the machine and having between the screw and the head a disc of steel and bronze, which enables it to stand any pressure without heating. The cylinder is equipped with a liner of cast iron, which, when worn too large, can easily be replaced. Ample provision is made for steam and hot water circulation around the screw in the cylinder and the temperature of either end of the cylinder can be kept independent of the other. The machine is built in three sizes; the diameter of the smallest size screw is $3\frac{1}{4}$ inches, the second size $4\frac{1}{2}$ inches, and the largest size 6 inches. [Trenton Machine Specialty Co., Trenton, New Jersey.]

PARA RUBBER SEED OIL.

In a letter to the Planters' Association of Ceylon, Professor Dunstan, of the British Imperial Institute, calls the attention of that body to the favorable opportunity that presents itself just now for placing supplies of Pará rubber seed kernels or oil on the European market. In his communication, he points out that the oil in question is suitable for use as a drying oil, to replace linseed oil and similar drying oils, the prices of which have been rising steadily of late and that while the Pará rubber seed oil would fetch about the same price, or perhaps a little less than the linseed oil, the seed from which it is extracted would be enhanced in value beyond present prices. The association is requested to furnish information in regard to the possibility of obtaining a steady and sufficient supply of the seed.

A VERTICAL BRUSHING MACHINE.

COMPACT, simple and efficient, the patent vertical brusher, illustrated herewith, is a machine the utility of which will appeal to manufacturers of coated or water-proofed fabrics. It is built with six cylindrical brushes, filled with stiff bristles and so arranged that in passing vertically upward, between them, the fabric is exposed to the active brushing effect of three brushes



HEATH PATENT VERTICAL BRUSHER.

on each side. If desired, steel bladed beaters or other cleaning appliances may be used in place of some of the brushes. For each brush, a dust chute is provided, through which, without again coming in contact with the fabric under treatment or the other brushes, the dust, lint, etc., is conducted into the dust receptacle in the base of the machine, an air exhaust fan, connected with the dust chutes, expediting its removal.

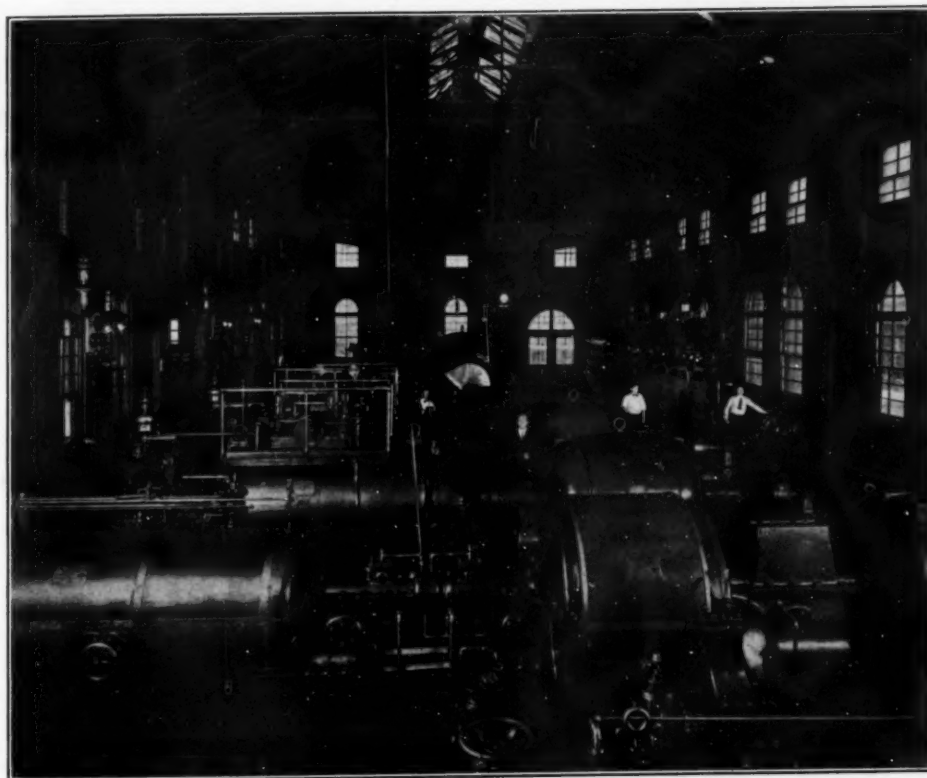
The machine does good work by brushing and cleansing the surfaces to be coated, on both sides, brushing coated goods in connection with starch, cleaning cotton liners of soap-stone, etc., and general brush-finishing. The machine may be run in connection with calender rolling machines as shown in illustration, if tight hard rolls are needed, or provided with an ordinary rolling up device. If it is only used to lay the goods off in loose folds an overhead folding attachment may be used. The machines built in various sizes as required. [Curtis & Marble Machine Company, Worcester, Massachusetts.]

CELLON—A NEW PRODUCT.

CELLON is perhaps not exactly new in Europe as at least two companies are said to be turning out goods. It, however, has only appeared in sample form in the United States. It is as the name indicates, a cellulose product, but radically different in form from celluloid, acetyl cellulose, etc. In block or sheet form it equals the best celluloid products and is non-inflammable. As its cost in this form is high that will probably not be its first line of commercial development. In solutions, however, it seems to have a very wide field of application. For example, in proofing leather it does away with the troublesome necessity of using castor oil and one coating of it is said to equal ten of celluloid.

GOODRICH "SERVICE"

The Power House



This is the source of power for the day and night work at the factories of the B. F. Goodrich Company, the largest independent Rubber Company in the world.

THE B. F. GOODRICH COMPANY

AKRON, OHIO

NEW YORK BELTING AND PACKING CO., Ltd.

MANUFACTURERS OF A COMPLETE LINE OF HIGH GRADE MECHANICAL RUBBER GOODS

Including Cobb's Piston & Valve Rod Packing, Indestructible White Sheet Packing
Vulcan High Pressure Spiral Packing, "1846" Para Rubber Belting,
Magic Garden Hose, Air Brake, Air Drill, Steam,
Suction, Water Hose, etc.

Original Manufacturers of Interlocking Rubber Tiling.

Nos. 91-93 CHAMBERS STREET, NEW YORK

ECCE SIGNUM.



THOROUGHLY RELIABLE.

The policy of furnishing only the finest goods that can be produced with perfect materials, latest and best machinery, and highly skilled workmen of long experience, has been, is now, and will continue to be, the policy of

The Mechanical Rubber Company, CHICAGO, ILL.

Branch Store, No. 1810 Blake Street, Denver, Colo., where we carry a full line of goods.

Manufacturers of all kinds of rubber goods for mechanical uses—Hose, Belting, Packing, Gaskets, Bicycle Tires, Specialties, Moulded Goods, Etc., Etc.

If you are unable to satisfy your trade with goods you are supplying,
If you are in search of good goods at fair prices,
If you cannot get quick deliveries,
If you are not getting fair value for your money,
IN ANY EVENT,

SEND TO US FOR SAMPLES AND
QUOTATIONS.
WE CAN SUIT YOU EVERY WAY.

FACTORY, GRAND AVE. & ROCKWELL STS

THE MECHANICAL RUBBER CO., 230 Randolph St., Chicago, Ill.

United States Rubber Co.

ON May 16 the nineteenth annual meeting of the United States Rubber Co. was held at the company's registered offices at New Brunswick, New Jersey. The annual reports of the officers, which were read and approved and are herewith reproduced, indicate the company's operations and its present condition.

REPORT OF PRESIDENT COLT.

TO THE STOCKHOLDERS OF THE UNITED STATES RUBBER CO.—The operations of the company during the past year show a net profit less than that in the preceding year. This is due to the decline in general business during the last six months to the mildness of the winter, and to the erratic fluctuations in the price of crude rubber, which, since April 1, 1910, has fallen almost one-half, necessitating inventory valuation below cost, not only of crude rubber in stock but also of manufactured goods carried over.

The report of the treasurer appended hereto gives the Consolidated General Balance Sheet and the Consolidated Income Statement of the United States Rubber Co. for the fiscal year ending March 31, 1911.

The operations of the Rubbers Goods Manufacturing Co., the Canadian Consolidated Rubber Co., Limited, the General Rubber Co., and a mechanical company, are not included in the Treasurer's Report, but only the sums received by way of dividends declared upon the United States Rubber Co.'s stock interest therein. The share of the undivided earnings of such companies for the year which appertain to such stock interest is computed to be \$1,312,166.11.

VOLUME OF BUSINESS.

The aggregate net sales of the company for the year were \$40,888,724.25 as against \$38,711,051.43 in the previous year, an increase of \$2,177,672.82.

PROFITS.

The net profits for the year, after adjusting inventories to correspond to the lower level of crude rubber, are \$4,349,825.73 as compared with \$5,535,163.15 the previous year, showing a decrease of \$1,185,337.42. Should we add to these net profits \$1,312,166.11, the company's estimated share in the undivided profits of the companies in which it is a stockholder, which, as above mentioned, are not included in the Consolidated Statement, the profits for the year would be \$5,661,991.84 as against \$7,235,000 upon a similar estimate for the preceding year. The company's profit is reached after deducting all interest charges, including coupons on the \$19,000,000 outstanding funded debt.

EXPORT BUSINESS.

The year's experience has justified last year's expectation of growth in the export business of the company, such sales for the past year having been larger than in any previous year.

RUBBER GOODS MANUFACTURING CO.

The sales of the Rubber Goods Manufacturing Co. for its last fiscal year were \$35,188,295.40 as against \$25,629,592.71 the previous year, this increase being mainly in tires. The net profits were \$2,122,247.62 as compared with \$2,369,971.61 net profits the previous year. The profits would have increased substantially in proportion to the sales had it not been for the reduction in inventory values necessitated by the lower level of crude rubber.

TIRES.

Recently the distribution of tires manufactured by our companies has been consolidated through the organization of the "United States Tire Co.," which company hereafter will market the "Continental," the "G & J," the "Hartford" and the "Morgan & Wright" tires. This action was taken after much consideration on the part of the president and directors of the Rubber Goods Co. It is believed that it will prove highly advantageous in the future development of this important branch of the rubber business and that it will place the United States Rubber Co., through the United States Tire Co., in the front rank as the largest manufacturer and distributor of rubber tires in the world.

The company has recently leased for a long term of years the premises on the southeast corner of Broadway and Fifty-eighth street, New York, containing 10,638 square feet of land upon which a building is to be erected, the primary object of which is to obtain adequate facilities for the tire business of the company, the probability being that the principal offices of the company and its subsidiary companies will also be transferred to



COLONEL SAMUEL P. COLT.

[President United States Rubber Co.]

this new building when it is completed.

CRUDE RUBBER.

The fluctuations in crude rubber have been violent during the year. At the beginning of the year (April 1, 1910) the price of fine Pará was \$2.73 a pound, while at the end (March 31, 1911) it was \$1.43, it having sold in the meantime as high as \$3 and as low as \$1.13.

With a view of relieving our company from the future necessity of purchasing crude rubber at a market price which, though sometimes the result of supply and demand, not infrequently is that of manipulation, your directors have taken further steps during the year toward ourselves producing a substantial part of our requirements of crude rubber, and to this end have made additional investments in the Far East.

REVIEW OF BUSINESS FOR PAST TEN YEARS.

As it is now ten years since your president's first election to that office, a brief review of what has been accomplished during that period may be of interest to our stockholders.

At the beginning (May, 1901) the company's surplus was nominal, dividends had stopped on all issues of stock, the entire volume of business was but about one-quarter of the entire volume at the present time, and the earnings were small. Four-fifths of the product of the company was boots and shoes; the larger part being sold to jobbers. The "Property and Plant" account of the company was \$47,323,355.77, and the capital stock was \$47,191,500. For the year ending April 1, 1901, the net sales of the company were \$20,853,633.94; and the market price of its preferred stock was 59 and of its common stock 21.

The continuance of the company only as a boot and shoe company, with its then volume of business and then amount of capital stock, would have afforded little satisfaction or encouragement.

The consumption of rubber boots and shoes in the United States has not increased during the past ten years in proportion to the increase in population. This result has been attributed to (1) improved methods for the speedy removal of snow from the sidewalks and streets of the large cities and towns, (2) facilities afforded for travel by suburban street railways, (3) higher selling prices for goods the past three years, necessitated by higher cost of crude rubber.

In April, 1904, the volume of business and profits had grown to a point where your directors felt justified in resuming the payment of dividends upon the preferred stock, and, as stated, in the President's Annual Report for that year:

"This step was not taken without the firm conviction on the part of your directors that the company would be able to continue quarterly dividends hereafter."

In the Annual Report of 1905, under the heading of "Dividends," your president made the following reference to the subject:

"and your directors felt it unwise to resume dividends until they could feel morally certain of maintaining them."

At about this date it became apparent to your directors that in the establishment of agencies for the sale of rubber boots and shoes it was manifest that other lines of rubber goods could be distributed through such agencies with economy to both, and also that rubber tires, which five years before were of comparatively little consequence, were becoming a most important article of rubber manufacture. Consequently it was deemed desirable to take steps to meet these conditions through the acquisition of successful concerns in these lines of business, the most important being the purchase by the company of the stock of the Rubber Goods Manufacturing Co. This was accomplished in 1905 through the purchase of the larger part of the Rubber Goods preferred stock by the issue of the first preferred stock of the United States Rubber Co., share for share, and the purchase of two shares of the Rubber Goods common stock for one share of 6 per cent. second preferred stock of the United States Rubber Co. This acquisition, in the opinion of your president, while fair at the time to the stockholders of both companies, has proved of great advantage, and, also, in his opinion, promises to prove of still greater advantage to the stockholders of the United States Rubber Co.

During this past year the volume of business of the Rubber Goods Co. was greater than that of all of the subsidiary companies of the United States Rubber Co. in the year 1905.

The rubber business of Canada having been in somewhat close association with the rubber business of the United States and the principal companies there under the guidance of Mr. D. Lorne McGibbon having been consolidated, early in 1907 the opportunity presented itself for the United States Rubber Co. to acquire, on what has proved to be a most favorable basis, much more than a controlling interest in the Canadian Consolidated companies.

Canada, as is well known, is not only a prosperous and growing country, but owing to its climate offers an exceptional

field for the consumption of rubber boots and shoes. Practically all lines of rubber goods, including tires, are manufactured by the Canadian Consolidated Rubber Co.

In July, 1908, the death of Mr. Charles H. Dale, the president and the practical head of the Rubber Goods Manufacturing Co., imposed upon your directors the difficult task of seeking and finding an experienced successor competent to develop and conduct the growing business of that company, and especially its tire business. Upon investigation it became apparent that it was most desirable to obtain the services of Mr. Elisha S. Williams for this important position. His record with the Revere Rubber Co. was proof of his ability, and in December, 1909, in the course of the negotiations with Mr. Williams it developed that the only way of obtaining his services was by acquiring the Revere Rubber Co. itself, a successful concern manufacturing the "Continental" tires, in addition to a general line of rubber goods. This was accomplished and on January 5, 1910, Mr. Williams became president of the Rubber Goods Manufacturing Co., all to the advantage of your company fully to the extent anticipated in the last annual report.

An analysis of the business and the earnings of the year just closed indicates that the volume of business of the property of the United States Rubber Co. acquired prior to April 1, 1905, was \$31,868,839.52, and that the volume of business of the properties acquired since April 1, 1905, was \$52,142,958.21. Basing the calculation upon the cost of these latter properties, the percentum of profit on this business for the year just closed was more than twice as large as the percentum of profit made in the same year upon the business of the properties purchased prior to April 1, 1905, estimated upon a like basis.

It will be observed that in the acquisition of the various properties since April, 1905, no common stock has been put out. The small increase in the common stock from \$23,666,000 to \$25,000,000 is represented by common stock issued at full face value for actual property purchased from the Meyer Rubber Co., a subsidiary of the United States Rubber Co.

The question of the payment of dividends upon the common stock of the company and of the making of quarterly reports of earnings to the stockholders are subjects that have received much consideration from the directors. As to the matter of reports, I would say that it is the desire of your directors to give to the stockholders information as to the business of the company which shall be not only full, but trustworthy. Our boot and shoe business is a season's business which renders it difficult to make any subdivided estimate of the year's profits which will not be misleading. From July, 1906, to April, 1908, at each quarterly divided period an estimate of the quarterly earnings was given, and was discontinued only because of complaints that it was misleading. It is still the wish of the management, if practicable, to make quarterly statements and the same will be done when the method can be wisely worked out.

As to the business policy pursued during the past ten years in the enlargement of the scope of our operations as above indicated, in the retention in the business of reasonable surplus reserves not only to strengthen the financial condition, but to fortify the value of its common stock, rather than weaken the company by the division of such surplus earnings by way of dividends to the common stock, it would seem that conservative investors naturally must be of the same approving mind as the great body of the stockholders. From time to time this general policy has been set forth in the annual reports to the stockholders and has received their approval. In the report of 1906 it was summarized as follows:

"It has been the policy of the directors to strengthen the company by adding to its surplus and by improving its efficiency in order to give assurance of the continuance of dividends upon its preferred stock before the resumption of dividends upon the common stock, it being believed that in the end this conserva-

tive policy will result to the best interests of ALL the stockholders.

"It is to be desired that in industrial properties there shall be established stability and regularity of dividends, such as obtain in the best railway properties. . . . Upon such considerations, it has seemed conservative and just to defer dividends upon the common stock at least until such time as the management shall be reasonably satisfied that, having begun their payment, the same can be maintained, although—even without present dividends in cash, the common stock, by enhancement of value through accumulation of surplus, will have shared in the prosperity of the company."

The report of 1910 contained the following:

"The earnings of the company the past year, considered by themselves, would seem to warrant some division to the common stockholders, and were it not for the abnormally high price of crude rubber existing, and the consequent requirement of a much larger sum of money to purchase and carry the same, your president would feel warranted in recommending a dividend upon the common stock at the present time."

Had the conditions of business and profits at the close of this last year been as flattering as at the close of the preceding year, and if uncertainties affecting the legal status of consolidations had been dissipated, your president would have had no hesitancy now, with the present lower level of crude rubber, in recommending a dividend upon the common stock, and he believes that the day cannot be far distant when all the conditions will be such as to warrant some material recognition of our common stockholders. Respectfully submitted,

SAMUEL P. COLT, *President.*

TREASURER'S REPORT.

UNITED STATES RUBBER CO. AND SUBSIDIARY COMPANIES.

[Not including Assets or Liabilities of Rubber Goods Manufacturing Co. and certain other Companies owned in part by United States Rubber Co.]

CONSOLIDATED GENERAL BALANCE SHEET, MARCH 31, 1911.

ASSETS.

Property and plants (including shares of R. G. M. Co., Canadian Consolidated Rubber Co., Ltd., and Revere Rubber Co.)	\$84,622,399.07
Inventories, manufactured goods and materials	\$17,474,148.40
Cash	3,244,947.07
Bills and Loans receivable	1,755,996.28
Accounts receivable	11,052,140.18
Stock owned in General Rubber Co.	2,000,000.00
Securities, including stock of U. S. R. Co., held by a subsidiary company.	3,031,939.90
Miscellaneous assets	119,850.12
	<u>\$38,679,021.95</u>
Total assets	\$123,301,421.02

LIABILITIES.

Capital stock, first preferred	\$40,000,000.00
Capital stock, second preferred	10,000,000.00
Capital stock, common	25,000,000.00
	<u>\$75,000,000.00</u>
Ten-year 6 per cent. collateral trust sinking fund gold bonds*	\$19,000,000.00
Loans and notes payable	\$4,917,877.55
Merchandise accounts payable	837,335.18
Accrued interest, taxes, etc.	400,213.34
Due General Rubber Company	5,211,722.55
	<u>\$11,367,148.62</u>
Reserve for contingencies	500,000.00
Reserve for dividends	950,000.00
Fixed surpluses (subsidiary companies)	8,134,849.37
Surplus	8,349,423.03
Total liabilities	\$123,301,421.02

The contingent liabilities for certain guarantees, which are offset by corresponding contingent assets, are not included.

*1,000,000 of the original issue of \$20,000,000 bonds have been cancelled under Sinking Fund provision.

CONSOLIDATED INCOME STATEMENT FOR YEAR ENDING MARCH 31, 1911.

Gross sales, boots and shoes and miscellaneous	\$54,751,939.13
Net sales, boots and shoes and miscellaneous	\$40,888,724.25
Cost of goods sold	33,685,139.55
	<u>\$7,203,584.70</u>
Manufacturing profits	\$7,203,584.70
Freight, taxes, insurance, general and selling expenses	2,091,742.19
	<u>\$5,111,842.51</u>
Operating profits	\$5,111,842.51
Other income (net), including dividends received on stock of certain other companies owned by U. S. R. Co.	1,485,846.66
Total income	\$6,597,689.17
LESS:	
Interest on bonds and borrowed money	\$1,261,381.30
Interest allowed customers for pre-payments	552,033.61
	<u>1,813,414.91</u>
Net income	\$4,784,274.26
Deductions for bad debts, etc.	47,623.67
	<u>\$4,736,650.59</u>
Profits	\$4,736,650.59
Depreciation of merchandise	386,824.86
	<u>\$4,349,825.73</u>
Net profits	\$4,349,825.73
Dividends	3,800,000.00
	<u>\$549,825.73</u>
Surplus for period	\$549,825.73
Surplus April 1, 1910	7,799,597.30
	<u>\$8,349,423.03</u>
Surplus March 31, 1911	\$8,349,423.03

Respectfully submitted,

JAMES B. FORD, *Treasurer.*

The certificate of audit of the company's accounts, signed by Haskens & Sells, certified accountants, accompanies the foregoing statements.

THE ANNUAL ELECTION.

THERE was no change made in the directorate of the company, the board being re-elected and consisting, as last year, of the following members:

Walter S. Ballou,	Henry L. Hotchkiss,
E. C. Benedict,	Arthur L. Kelley,
Anthony N. Brady,	Lester Leland,
Samuel P. Colt,	D. Lorne McGibbon,
Harry E. Converse,	Edward R. Rice,
James Deshler,	Homer E. Sawyer,
James B. Ford,	Frederick M. Shepard,
J. Howard Ford,	William H. Truesdale,
Frank S. Hastings,	John D. Vermeule,
Francis L. Hine,	Elisha S. Williams.

The board of directors at a subsequent meeting, organized and re-elected last year's officers, as follows:

<i>President</i> —SAMUEL P. COLT,
<i>Vice President</i> —JAMES B. FORD,
<i>Second Vice President</i> —LESTER LELAND,
<i>Treasurer</i> —JAMES B. FORD,
<i>Assistant Treasurer</i> —W. G. PARSONS,
<i>Secretary</i> —SAMUEL NORRIS,
<i>Assistant Secretary</i> —JOHN D. CARBERRY,
<i>General Manager</i> —HOMER E. SAWYER,
<i>Executive Committee</i> —Samuel B. Colt, James B. Ford, Lester Leland, E. C. Benedict, Walter S. Ballou, Anthony N. Brady and John Watson, Jr.

BUSINESS OF THE COMPANY.

THE following table, showing the amount of net profits of the United States Rubber Co. and the amounts disbursed in dividends since the organization of the company, has been

compiled from the printed reports of the successive treasurers of the corporation:

YEAR ENDING—	Net Profits.	Dividends.
March 31, 1893.....	[Not Published.]	
March 31, 1894.....		
March 31, 1895.....	\$2,716,370.00	\$2,056,190.00
March 31, 1896.....	2,339,790.60	1,552,040.00
March 31, 1897.....	1,999,611.34	1,552,040.00
March 31, 1898.....	2,070,750.41	1,552,040.00
March 31, 1899.....	3,226,513.46	1,882,040.00
March 31, 1900.....	3,007,887.54	2,828,680.00
March 31, 1901.....	62,605.57	705,765.00
March 31, 1902.....	deficit	none
March 31, 1903.....	1,594,908.16	none
March 31, 1904.....	1,575,641.29	none
March 31, 1905.....	3,761,922.63	1,882,040.00
March 31, 1906.....	3,881,270.23	2,846,092.00
March 31, 1907.....	4,590,382.72	3,485,956.00
March 31, 1908.....	3,553,556.14	3,495,448.00
March 31, 1909.....	4,507,655.39	3,498,940.00
March 31, 1910.....	5,535,163.15	3,574,205.00
March 31, 1911.....	4,349,825.73	3,800,000.00

CANADIAN CONSOLIDATED RUBBER CO., LIMITED.

THE financial condition of the above company, as for the year ending December 31, 1910, is shown as follows

ASSETS.	
Cash	\$1,570.32
Accounts receivable	245,835.44
Furniture and Fixtures.....	6,595.86
Equipment	567.00
Patents	47.50
Merchandise	4,492.68
Investment in capital stock of subsidiary rubber and felt companies	7,354,401.00
Total	\$7,613,510.30

LIABILITIES.	
Accounts payable	1,166.22
Six per cent bonds:	
Authorized	\$2,600,000.00
Less unissued	20,400.00
Preferred capital stock:	
Issued	1,980,000.00
Less in trust (Royal Trust Co.)....	7,140.00
Common capital stock:	
Issued	2,805,500.00
Less in trust (Royal Trust Co.)....	3,060.00
Total	\$7,356,066.22
Balance profit and loss to 1911	257,444.08

PROFIT AND LOSS ACCOUNT.	
By balance brought forward.....	\$76,700.44
By surplus from felt stock.....	\$1.00
By dividends from subsidiary companies	325,401.25
By revenue from other sources	351,179.18
Total	\$751,281.87
To bond interest	\$153,039.00
To preferred stock dividend	137,530.75
To common stock dividend.....	111,930.00
To expense	91,338.04
Surplus	\$257,444.08

The complete list of officers for the current year is as follows:

President—D. LORNE MCGIBBON.
 Vice President—J. H. McKECHNIE.
 Vice President—Geo. W. STEPHENS.
 Vice President—T. H. RIEDER.
 Vice President—F. H. WARD.
 Secretary-Treasurer—WALTER BINMORE.
 Assistant Treasurer—LEONARD D. SHAW.
 Assistant Secretary—C. H. ANCRUM.

DIRECTORS.—D. Lorne McGibbon, J. H. McKechnie, Geo. W. Stephens, T. H. Rieder, F. H. Ward, Alexander Pringle, Shirley Ogilvie, Victor E. Mitchell, E. W. Nesbitt, Duncan Coulson, W. R. Allan.

COMPRESSED AIR VULCANIZING PRESSES.

RUBBER manufacturers are generally familiar with the various uses for which compressed air is used in the manufacture of rubber goods. The writer of this article, however, has made use of it in an entirely different manner to any with which he has been familiar and that is for operating small vulcanizing presses instead of hydraulic or hand-power. It was discovered by him that not a great amount of pressure was necessary in the manufacture of practically all moulded goods, but that continuous pressure was necessary and that presses operated by compressed air fitted up with a ram of the right size and properly piped could be used with greater success than water, and the results were far superior. This use, I believe, entirely new and has many advantages over water; first, in its greater simplicity in piping because ordinary pipe of small size only is necessary and it does not require special valves, which frequently leak and cause great loss in spoiled goods, while with my method it is true the air is wasted, which could probably be saved if necessary. It has been my custom to simply close the inlet valve and open the relief valve and the air is discharged directly into the atmosphere; second, the speed at which these presses can be operated greatly increases the output because the release is instantaneous and the press drops quickly and, in the hands of the expert, silently. It also rises with much greater rapidity than the hydraulic press; third, a leak can be instantly detected and remedied, which is hydraulic presses is not the case. It only requires from ninety to one-hundred pounds pressure to give satisfactory results. I have used for this purpose a large sized locomotive air pump, but an air compressor is much better. Better results are also obtained if a large receiver is used. A typical size for use where 10 to 25 presses are used would be 20 ft. long x 5 ft. diameter. So far as I have gone into this matter I believe there is much greater latitude in the number of presses to be operated by one unit of power than is true in hydraulic presses, as I have used as high as 30 presses on one unit in addition to furnishing from the same source all of the air required by a large plant, making hose and tires where a large amount of air is used, as is generally known.

To sum up the advantages of an air press would result about as follows: Greater simplicity in piping, which means a saving in the first cost of installation; greater margin of saving in manufacture, larger output and much greater cleanliness in that there is no water from leaking hydraulic valves or pipes.

W. D.

INDIA-RUBBER GOODS IN COMMERCE.

EXPORTS FROM THE UNITED STATES.

OFFICIAL statement of values of exports of manufacturers of india-rubber and gutta-percha for the month of March, 1911 and the first nine months of five fiscal years, beginning July 1:

MONTHS.	Belting, Packing and Hose.	Boots and Shoes.	All Other Rubber.	TOTAL.
March, 1911.....	\$157,915	\$102,606	\$576,138	\$836,659
July-February	1,354,060	1,699,371	3,899,406	6,952,837
Total, 1910-11.....	\$1,511,975	\$1,801,977	\$4,485,644	\$7,789,496
Total, 1909-10.....	1,416,655	1,499,770	3,510,618	6,427,043
Total, 1908-09.....	1,053,758	1,071,489	2,805,914	4,931,161
Total, 1907-08.....	1,040,985	1,342,965	2,802,371	5,186,321
Total, 1906-07.....	914,276	962,964	2,664,967	4,542,207

THE above heading "All Other Rubber," for the last nine months, includes the following details relating to Tires:

MONTHS.	For Automobiles.	All Other.	TOTAL.
March, 1911..... values	\$131,183	\$43,772	\$174,955
July-February	1,194,720	368,029	1,562,749
Total, 1910-11.....	\$1,325,903	\$411,801	\$1,737,704

Rubber Goods Manufacturing Co.'s Twelfth Annual.

ON APRIL 13, 1911, the Rubber Goods Manufacturing Co. held its twelfth annual meeting, at the registered offices of the company, in Jersey City. The president presented the following report:

In submitting the twelfth annual report of the company, your president would call attention to the fact that during the past fiscal year we have had to contend with most trying conditions in the crude rubber market, due to the unprecedented range in prices.

In January, 1910, Upriver fine Pará rubber was \$1.75 per pound. During the year 1910 it sold as high as \$3 per pound, with frequent and marked intervening fluctuations. Finally at the end of our fiscal year, December, 1910, it had declined to \$1.35 per pound. These conditions made business operations unusually difficult.

Nevertheless, our volume of trade greatly increased. Indeed, it surpassed all previous years. The net earnings would undoubtedly have increased in proportion but for the great shrinkage in inventoried values due to the comparatively low price of crude rubber in December, 1910, and our action based upon our feeling that a conservative policy required a very considerable mark-down in our inventory of raw material and manufactured goods.

During the past year much thought has been given to the subject of how most economically and effectively to manufacture and market the large product of our four tire companies, which resulted in the organization of the "United States Tire Co.," through which new company, on March 1, 1911, we commenced to sell the entire production of "Continental," "G. & J.," "Hartford" and "Morgan & Wright" tires. Much progress is being made on similar lines in factory operations, and it is anticipated that great benefits will be derived from this action in the near future. Our entire sales force is enthusiastically promoting the sale of all brands of tires of our manufacture, and a large and healthy increase in business may be expected from this concentration of the tire sales department.

Particular care and attention has been given to maintaining the plants in a condition of highest efficiency; extensive improvements having been made at several of our factories during the past year.

The treasurer's report of the financial condition of the company and of the operations for the fiscal year is appended.

Respectfully submitted,

ELISHA S. WILLIAMS,
President.

TREASURER'S REPORT.

CONSOLIDATED GENERAL BALANCE SHEET, DECEMBER 31, 1910.

ASSETS.	
Property, plants and investments....	\$25,449,285.63
Patents and trademarks	2,312,121.32
Inventories, mfd goods and materials, \$13,844,877.63	
Cash	1,938,094.27
Bills and accounts receivable.....	3,853,620.23
	19,636,592.13
Securities owned	\$6,780.00
Stock owned in General Rubber Co....	1,000,000.00
	1,006,780.00
Miscellaneous assets	301,461.01
Total assets	\$48,706,240.09

LIABILITIES.

Capital stock, preferred	\$10,351,400.00	
Capital stock, common	16,941,700.00	27,293,100.00
Bonds of Mechanical Rubber Co. and N. Y. Belting & Packing Co. (less amount owned)	980,010.00	
Sinking fund cash in hands of Trustee	206,005.62	774,004.38
Reserve for redemption of bonds....		661,979.84
Bills and accounts payable.....		10,666,068.54
Reserve for new construction and plant repairs		231,000.00
Reserve for Federal excise tax....		22,337.01
Fixed surplus (subsidiary companies)		2,499,218.65
Surplus		6,558,531.67
Total liabilities		\$48,706,240.09

Of the above "surplus," \$135,767.89 would represent the ratable interest therein of minority stockholders as compared with that of the Rubber Goods Manufacturing Co.
Contingent liabilities for certain guarantees which are offset by corresponding contingent assets, are not included.

CONSOLIDATED SUMMARY OF INCOME AND PROFIT AND LOSS FOR YEAR ENDED DECEMBER, 31, 1910.

Net sales	\$35,188,295.40
Earnings of subsidiary companies	\$2,169,326.22
Income from investments	100,000.00
	\$2,269,326.22
LESS:	
Expenses of Home Office	147,078.60
Net profits	\$2,122,247.62
Dividends	\$989,994.00
Added to reserve for redemption of bonds	73,431.31
Adjustment of reserves for depreciation	2,157.87
	1,065,583.18
Surplus for the period	\$1,056,664.44
Surplus and working capital January 1, 1910	5,501,867.23
Surplus and working capital December 31, 1910	\$6,558,531.67

Respectfully submitted,

EDWARD J. HAWTHORNE,
Treasurer.

The following directors were elected for the current year:

Elisha S. Williams,	Ernest Hopkinson,
Anthony N. Brady,	Charles A. Hunter,
Samuel P. Colt,	Arthur L. Kelley,
Frank W. Eddy,	Lester Leland,
James B. Ford,	Homer E. Sawyer,

After organization, the board elected last years' officers, as follows:

President.—ELISHA S. WILLIAMS.
Vice Presidents.—LESTER LELAND and CHARLES A. HUNTER.
Treasurer.—E. J. HAWTHORNE.
Assistant Treasurer.—JOHN D. CARBERRY.
Secretary.—SAMUEL NORRIS.
Assistant Secretary.—JOHN D. CARBERRY.
Executive Committee.—Elisha S. Williams, Lester Leland, Anthony N. Brady, Samuel P. Colt, Ernest Hopkinson, Charles A. Hunter, and Homer E. Sawyer.

The following record of the volume of net sales by the Rubber Goods Manufacturing Co. and the subsidiary companies is compiled from the successive annual reports as published:

1900	\$13,364,090.00	1906	\$19,737,120.81
1901	14,348,046.00	1907	21,473,823.28
1902	13,999,329.00	1908	18,491,987.90
1903	14,310,752.00	1909	25,629,592.71
1904	14,556,289.00	1910	35,188,295.40
1905	17,662,453.00		

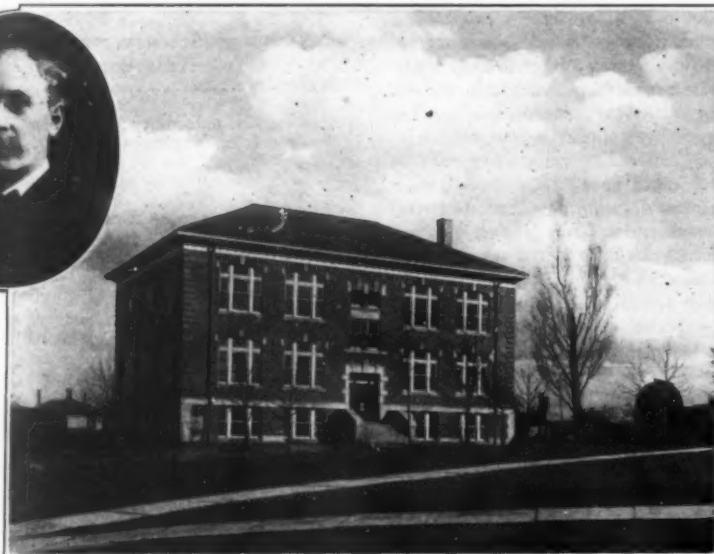
BUCHTEL COLLEGE RUBBER LABORATORY.

BUCHTEL College (Akron, Ohio), has what no other American school possesses—a complete working rubber laboratory. It is equipped with a full line of rubber machinery and students have the use of mixing mills, calender rolls, vulcanizers, as well as of the finely constructed and delicate apparatus used in the laboratory. The course is organic chemistry for a year, quantitative analysis for six months, with six months for a special course in chemistry.

During the first half year particular attention is given the experimental study of crude gum, covering the amount of moisture, foreign materials and resins, solvents of crude gums, the chemistry of colloids, constituents of rubber, action of haloids and sulphur upon rubber, theories of vulcanization, experiments upon vulcanization, chemical examination of sulphur carriers and compounds, used as "fillers," chemical analysis of cured rubbers, etc., etc.

During the second half year a comparative study is made of various methods for determining free and total sulphur, nature of the active extract, determination of fatty and other organic substitutes, a study of reclaiming processes, the principles involved and efficiency in practice, chemical examination of samples of reclaimed stock, experiments in compounding, effects of compounds upon the character of the products, causes of deterioration of cured rubber.

The second year covers special work in research, depending on the particular field of chemical research and mechanical practice which the student desires to master. The course is wonderfully well arranged and of great value.



BUCHTEL COLLEGE, AKRON, OHIO, RUBBER LABORATORY.
Portrait of Dr. C. M. Knight, Dean of the Chemical Department.

THE FEDERAL RUBBER MANUFACTURING CO.

THIS company, which incorporated under the laws of the State of Wisconsin, starts with a capital of \$1,000,000, fully subscribed, and will manufacture mechanical goods and solid and pneumatic automobile and bicycle tires. It has purchased the present plant of the Federal Rubber Co., at Milwaukee, which is being rapidly remodeled and extended by Westinghouse-Church-Kerr Co., who have a contract for new buildings, power plant and machinery. B. C. Dowse, until lately president of the G & J Tire Co., will be the guiding spirit. The sales manager will be Herbert A. Githens, formerly manager of sales and general representative of the G & J Tire Co., for the United States Tire Co., who will also be vice-president, and who assumed his duties the middle of May. Richard Ward, formerly secretary and treasurer of the G & J Tire Co., will be secretary and treasurer of the Federal Rubber Manufacturing Co.

Replete with information for rubber manufacturers: Mr. Pearson's "Crude Rubber and Compounding Ingredients."

RUBBER RECLAIMERS' CLUB LUNCHEON.

A SPECIAL feature of the last meeting of the Rubber Reclaimers' Club, held on May 4, 1911, was an elaborate luncheon given by the club to members and their guests. This luncheon was given at the Hotel Belmont, New York City, at one o'clock, and the regular meeting of the club was held immediately afterward.

Beyond all question this was one of the most successful meetings the club has ever held, not only because of the number of members in attendance, but because of the social side of the meeting as well. The officers of the club were all present, Joseph F. McLean, president; Francis H. Appleton, treasurer, and R. W. Seabury, secretary, and they all took pains to see that the other members and their guests enjoyed themselves.

The luncheon itself was very satisfactory, and helped to divert the minds of the members from the price of old rubber boots and shoes and helped also to make some of the members of the club better acquainted with each other.

Among other gentlemen who helped to make this event so successful were A. D. Thornton, of the

Canadian Consolidated Rubber Co.; Harold P. Fuller, of the E. H. Clapp Rubber Co., and the New Jersey Rubber Co.; Samuel H. Dodd, treasurer of the Pequannoc Rubber Co.; W. T. Rodenbach, of the United States Rubber Co.; Charles N. Downes and P. B. Price, of the Derby Rubber Co.; C. I. Wilson, of the Boston Woven Hose and Rubber Co.; Ira W. Henry, of the Bloomingdale Rubber Co.; H. R. Nason, of the Empire Rubber Manufacturing Co.; Charles Brock, of the Boonton Rubber Co.; John A. Norman, of the New York Rubber Reclaiming Co., and J. R. Trewin and

D. J. Price, of the Stockton Rubber Co.

The membership list of the Rubber Reclaimers' Club is constantly increasing, and it is hoped that eventually it will include all reclaimers of old rubber scrap, whether reclaiming for their own use or for the trade.

This club has been in existence for a number of years, and the meetings which it holds each month not only help its members but serve in the long run to benefit the trade as well.

ORGANIZED eight years ago by American business men doing business in the German Empire, carried on as an American Chamber of Commerce, with board of directors and committees, the American Association of Commerce and Trade, Berlin, is doing good work in promoting the interests of American manufacturers seeking trade with Germany. The work of the association extends over the entire United States and all Germany, and its secretary, Mr. George S. Atwood, will promptly respond to all enquiries looking to the extension of American trade with Germany.

The Maderos, Mexico and the Situation.

THE Maderos, who have come into special prominence the world over in connection with the recent revolution in Mexico, are a most interesting family. Their head, Don Evaristo Madero, who recently died in Los Angeles, California, was, during the early days of border warfare, very much of a leader of men, and is said to have had at one time 800 men under arms. He became an immense land owner, and it is said at the time of his death he was worth something like \$20,000,000.

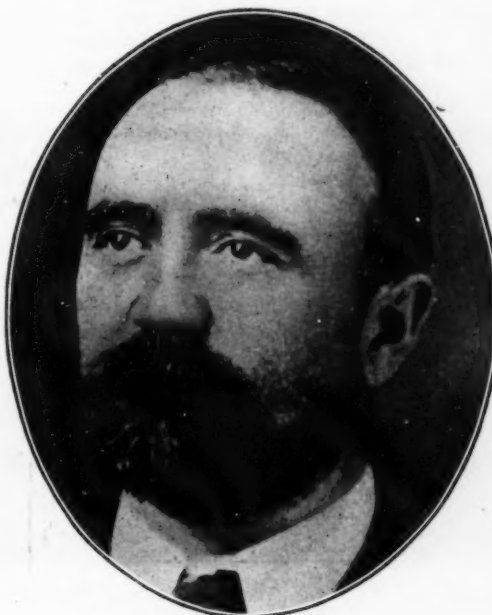
His sons, Francisco I. Madero and Ernesto Madero, are broadly educated, have held high diplomatic positions, and are thorough men of the world. The last named is slated for a cabinet position under the new regime. They are known to the rubber trade chiefly through their great holdings of land where the guayule shrub flourishes and by their various extracting plants for the manufacture of guayule rubber.

Francisco I. Madero, Jr., who announced himself provisional president and carried on a successful fight against the Diaz regime, is grandson to Don Evaristo. He is also a man of broad education, and has done what he believes to be his duty in bringing civil war upon his country. The Madero family have suffered much financial loss through the war, their various factories being closed, the laborers scattered, and as an act of reprisal the burning of the Madero factory at Parras, Coahuila, late this month. This factory was said to have an output of \$150,000 worth of guayule each month. A cotton mill also owned by the Maderos, with an output of \$200,000, was likewise destroyed.

It is to the credit of the revolutionists that business suffered so little, that trains ran so regularly, and that foreigners were so little molested during the long period of strife that now seems to be about over. The guayule factories shut down largely because there was no one to bring in shrub. So far there has been reported the destruction of only one plant, that cited above, which belonged to a Mexican. Down in the *Tierra Caliente*, where the *Castilloa* plantations are, things have gone along practically as if there were no war. One of our correspondents writes:

"The information we have been receiving right along from our plantations in Mexico would indicate that the newspaper reports regarding conditions down there are very much exaggerated. Everything is entirely quiet in our district and has

entirely with the government and not with the people or foreigners. I judge from the papers the last day or two that they



FRANCISCO MADERO.

[Courtesy of Hampton's Magazine, New York.]
[Photo furnished by George Grantham Bain, New York.]

are going to get their grievances settled, and that the country will settle down to its usual state of calm."

UNITED STATES STATISTICS TO MARCH 31, 1911.

IMPORTS.

	Year to June 30, 1910.		Nine Months ending March, 1911.	
	Pounds.	Value.	Pounds.	Value.
India-rubber	101,044,681	\$101,078,825	54,018,233	\$58,867,118
Guayule gum			16,428,288	8,749,655
Scrap rubber	37,364,671	2,998,697	21,532,916	1,902,556
Gutta-percha	784,501	167,873	920,068	227,222
Gutta jelutong (Pontianak)	52,392,444	2,419,223	40,149,482	2,240,292
Balata	399,003	196,878	591,699	409,698
Manufactures of india-rubber		1,154,347		654,488
Manufactures of gutta-percha		80,567		52,450
Total imports.....		\$108,096,410		\$73,103,479

EXPORTS.

	Year to June 30, 1910.		Nine Months ending March, 1911.	
	Pounds.	Value.	Pounds.	Value.
Scrap rubber	6,143,610	\$578,944	4,895,523	\$474,704
Reclaimed rubber	3,622,556	535,795	3,628,340	568,808
Manufactures of india-rubber and gutta-percha—				
Belting, packing and hose		1,960,825		1,511,975
Boots and shoes.....		1,984,739		1,801,977
Tires for automobiles..				1,325,903
All other tires.....		5,115,331		411,801
All other manufactures..				2,737,840
Total exports		\$10,175,634		\$8,833,008



PARRAS FACTORY OF THE CIA. EXPLOTADORA, COAHUILENSE, S. A.

been. In Tabasco there was a company of insurgents who took peaceful possession of a number of towns and government offices, but they committed no depredations or seemed disposed to destroy anyone's property. Their grievances seem to be

The Rubber Planting Interest.

THE MANHATTAN PLANTING HEVEA.

THE Manhattan Rubber Mfg. Co. (Passaic, New Jersey) for years have been one of the most alert of American companies concerning the sources of crude rubber. Almost every year one of their officials has journeyed to Central America, to Africa or the Far East, and as a result they know much of



WEEDING ONE YEAR OLD TREES MANHATTAN PLANTATION.

rubber gathering and planting. They were one of the first to plant *Castilloa* and had not two successive cyclones seriously interfered with the perpendicularity of the trees would have won out. It is most interesting to know that far from being cast



FIVE YEAR OLD "HEVEAS" ON MANHATTAN PLANTATION.

down, as were their trees, they are the possessors of a large *Hevea* plantation in the Far East from which they are already getting shipments of rubber.

A BOOK for rubber planters—Mr. Pearson's "Rubber County of the Amazon."

THE UNITED SERDANG (SUMATRA) RUBBER PLANTATIONS.

A crop of rubber amounting to 67,828 pounds, for which a net average of 6s. 8½d. per pound was realized, was reported by the Directors in their report to the third annual meeting of the above company, recently held in London. This large crop, much in excess of the estimate, was made without overlapping any of the trees, although a considerable addition was made to the number of those tappable, the number having increased from 5,638 trees in September, 1909, to 74,094 in August, 1910. During the year an additional 34 acres has been planted with Pará, bringing the total area under rubber to 7,284 acres. During the current year a material addition will be made to this area, there being 974 acres felled and cleared and 490 acres ready for planting. The net profit for the year was £21,615 10s. 6d., making, with £5,662 4s. 7d. brought forward from last year, £27,277 15s. 1d. available for distribution. From this it was recommended that a dividend of 10 per cent. be paid, leaving £9,277 15s. 1d. to carry forward to next year.

RUBBER ESTATES OF JOHORE, LIMITED.

The report, prepared by the Directors of the above company, for submission to the fifth annual meeting, held May 18, records a good growth of trees. Tapping on 10,000 trees will be commenced in July, and this number should be materially increased before the end of the year. The total expenditure during 1910 was reported as exceeding the estimate, owing to the higher wages demanded by Chinese and Malays, who would gradually be replaced by Indian laborers.

CENTRAL TRAVANCORE RUBBER CO., LIMITED.

The Directors submitted a report at the fourth annual general meeting of the above company, held in London, May 8, in which they describe the growth of the rubber as satisfactory, with 1906 rubber soon ready for tapping. During 1910 a small quantity of rubber was obtained—145 pounds—of very good quality; the estimate for 1911 is 13,000 pounds of dry rubber, but owing to the recommendation of the manager, K. E. Nicoll, that no trees be tapped until they attain a girth of 18 inches, at three feet from the ground, this estimate may not be fully reached.

INAMBARI PARA RUBBER ESTATES, LIMITED.

According to the report submitted by the Directors to the third ordinary general meeting of the above company, held in London, the crop of rubber harvested for the year ended July 31, 1910, was 29,273 pounds, landed weight, which realized, after deducting freight, landing and all sale charges, a net average price of just over 5s. 11d. per pound.

Owing to the seizure by bandits of the canoes and rafts prepared for the second caucho expedition, its departure was much delayed, and only 640 pounds of caucho obtained before the close of the financial year. The total proceeds from the sale of rubber and caucho amounted to £8,868.

COLISEO SUGAR PLANTATION COMPANY.

This company has received the report of the final inspection committee of bondholders, showing development of the entire property completed, according to the requirements of the trust deed. The number of good growing rubber trees on the plantation in the State of Vera Cruz, Mexico, is estimated at 2,000,000, which by replanting will be increased by about 500,000 this year. The first planting is 7 years old, but commercial tapping will probably be deferred for several years to avoid possible injury to the trees.

The Manufacture of Insulated Wire.

(By a Practical Man.)

ONE of the great industries into which rubber manufacture divides itself is the insulation of electric wires. The half hundred factories in various parts of the world, while having in a measure their own processes and special machines, still come near enough together in practice to make a general description of one fit them all. The work of laying the rubber upon the wire calls for two distinct operations that are accomplished by the use of the spewing machine and the strip machine.

SPEWING MACHINE INSULATION.

The spewing machines used for this branch of the business are identical with the tubing machines common to all rubber factories, with the exception of the head, which is usually constructed so that the compounded rubber is emitted from the side of the head upon the wire which passes through it at right angles to the worm. It is true some machines are so constructed that the wire passes through a hole drilled the length of the worm, but this style is used only for small wire, and the manufacturer claims a speed of production for an 18 B. & S. wire of 12,000 feet per hour. The side delivery is, however, in more extended use, as it is contended that this method of forcing insulation upon wire gives it greater density, a most desirable item in a body required to resist electric voltages.

The compound containing rubber for spewing machine work is prepared in the mixing mills in the manner employed for mechanical stocks. "Bolivian fine" is extensively used, as well as African and other sorts, and high and low-grade reclaimed rubbers. It is conceded that the best insulation stocks are secured by use of fine Pará, and as a rule, specifications for the very highest type of insulated wire and cables call for its use.

While for ordinary "mechanicals" crude rubber requires but little breaking down to render it fit for use in compounds, such is its intractable nature, that before it can be successfully used in the spewing machine, in mixings containing 20 per cent. to 40 per cent., its time in the breaking-down process consumes from four to six hours. It is during this interval that, specifications permitting, paraffin, ozocerite and other substances known to contribute to electrical resistance, are worked into the crude rubber. As the electric fluid has a marked affinity for particles of sand, metal and foreign substances in general, the greatest care is observed in preparing the materials that compose the mixings. The mineral powders are sifted through silk or brass mesh sieves, and frequently the completed compound is passed through a tubing machine, a special head for which is fitted with No. 40 to 60 brass or steel mesh.

Finally, after preparation in this painstaking fashion, the insulation material is ready for the spewing machines. It goes directly to these from the mixing mills, as, in order to work successfully, it must be used while hot and tractable. It is cut in strips from the mills, or passes through a scoring machine that permits the spewing machine operative to tear it apart as required. Hand feeding of these strips or pieces, however, requires skillful manipulation to overcome the tendency of the thickness of the insulation to vary as each new piece of insulation material is fed into the machine. Some factories adopt the method, for light insulation, of passing the prepared compound through the calender and cutting it into strips of a specified width. Material thus prepared has the advantage of uniformity. The feed is, also, practically automatic, requiring little or no manipulation after the first end of the cut strip is in the machine, as the revolutions of the worm draw it in steadily. By this method, one man can frequently run the whole job, except where

a layer-up of wire on a drum is required; by the first method, and also where the wire is to be coiled in a pan, from two to four men are required.

With insulation material in proper working order, the next most important step is to secure its even and unvarying thickness on the wire. This is gained by manipulation of parts called the die and nipple, by means of set screws in the machine head. This centering is important, for insulation is only as strong as its thinnest part. A grain of sand, or a minute sliver of wood sticking in the die will throw the insulation out of center, or if successful in passing through, remain as a weak spot for the electric fluid to discover.

With this smooth and symmetrical cover, the wire glides swiftly onward to pan or drum for vulcanizing. If intended for the drum it passes in a double turn through a tank of cold water for the purpose of hardening the insulation coat. If a pan is to be used, the water bath is omitted. Pan curing is necessary for most high-grade insulation for the reason that its soft composition would flatten if wound on a drum. Consequently pans are bedded with talc, or soap stone, upon which the wire is coiled by hand, and this material supplied between each layer. It is a neat job calling for acquired skill, to lay the wire in absolutely concentric circles without tangling, crossing or bruising. All the operations connected with spewing machine work call for expert manipulation. For example, white or red core is a type of insulation used in vast quantities. The size commonly used is 14 B & S, and the wire receives two coats of insulation material: the outer coat black, and the inner coat white or red. These two coats are applied in one operation (the spewing machines being run tandem), the wire receiving from the first machine the colored core, and from the second, the black cover. Naturally the speed of each machine requires accurate adjustment to secure perfect work, yet 50,000 to 60,000 feet per day is ordinary production.

It is not uncommon, however, in high-grade insulation, for specifications to call for three grades of composition. The modern method is to set three machines in line, and apply all three coats in one operation. The layer next the wire is frequently pure, unadulterated Pará rubber, or all three coats may be compounded material.

Not only are all sizes of single wire successfully insulated by means of the spewing machine, but double and twisted conductors, and stranded cables. In short, the successful manufacturer of insulated wire must have a genius for this branch of the rubber manufacturing business, so varied and exacting are its requirements.

The insulation material, composed of costly ingredients, is valueless until vulcanized. This is accomplished in various types of vulcanizers by means of live steam, the length of time and the temperature being carefully adjusted to the requirements of each type and grade of insulation. Some single wires and almost all sizes of stranded cables receive a layer of rubber-coated tape before going through the curing process. This is wound about them concentrically, special machinery being required for the purpose of preventing the swelling of the rubber coat during this operation, and also to prevent its flattening or injury in handling.

Vulcanization, barring mechanical injury in process, for the first time raises the insulation material to the dignity of insulation; and having passed the voltage tests required of its grade, or by the specifications under which it was produced, it is for the first time commercially valuable. As a rule, however, it is

not yet ready for practical use. Most single wire has next to receive a finish in the form of a cotton, hemp or silk braid rendered waterproof or fireproof. Cables also receive one, frequently two braids, cotton, hemp and asbestos being used. Braiding machines, therefore, properly constitute an important item in a fully equipped insulated wire factory. They each hold from 16 to 48 spools (so varied are the sizes of insulation to be covered), and are easy to operate, girls being largely employed at this work. The insulated wire is delivered to the braiders on reels holding 1,000 feet or more, to meet requirements or convenience. As fast as covered with braid it is wound automatically upon other reels. A common speed of production is two feet or more per minute. Fireproofing is applied to some braids as fast as produced, and for wire that must be covered with a second braid, as for "duplex," it saves time and rehandling to saturate the first braid as it leaves the machine. Another important province of the braiding machine is to weave or braid into the cover the colored thread or threads that constitute the mark (registered in the trade) of the manufacturer. Thus the maker of insulated wire, if unknown by his fruits, can be identified by his thread.

But braid, while adding a most attractive item to the appearance of insulated wire, is, for many situations of little value until saturated with material that renders it waterproof. This, of course, spoils its beauty, but adds to its utility. Saturating was is applied hot, the wire being drawn through tanks containing it. After this, another and final coat is applied in the same manner, with the difference that the wire comes from the process with a brilliant polish.

Stranded conductors and cables, when of large size, call for a protective finish in form of galvanized iron or steel wire. It is properly called an armor, as its purpose is to prevent external injury. Cables are frequently of very interesting construction. They are made up of small wires twisted together, say, 19, 37, 61, and so on, in accordance with the kind of cable they are to form. These may be simply tinned copper wires, covered in the cabled form, with an insulation of rubber or other material, or each individual wire may first be covered with insulation, and then twisted into a cable. A cable thus made may form but a part of a larger one. For example, three of them twisted together would form a "three-conductor-cable." They are ponderous, and unwieldy, and require the heaviest machinery to handle properly. Twisted thus together, the space between conductors is filled with jute laid in from bobbins as the cabling process proceeds. Over this is wound perhaps a tape saturated with rubber compound—or two servings of jute laid on in reverse layers and immediately passed through a hot asphalt composition. This in turn would be covered by an armor of steel wires.

For many types of cable, instead of an armor of wire, an armor of lead is used. The lead for this purpose is melted in a smelter which forms part of a lead press. This press is fitted with a die block to preserve the outside diameter of the lead sheath to be applied to a cable. The cable is passed through the die, where it comes in contact with the melted lead (which is applied in much the same manner as rubber insulation), and both are spewed forth by use of enormous hydraulic pressure. This lead cover is seamless, flexible and impervious to moisture. Rubber insulated wire thus manufactured into cables lasts for years.

(To be continued.)

Robert B. Baird, vice president of the Rubber Trading Co. and commissioner of The Rubber Club of America to the Second International Rubber and Allied Trades Exhibition, to be held at the Royal Agricultural Hall, London, accompanied by Mrs. Baird and their son Robert Lisle Baird, will sail on the *Campania*, June 7, 1911, for Paris by way of London, but will return thither in time for the exhibition. Robert L. Baird will cover the Continental markets while abroad.

THE EDITOR'S BOOK TABLE.

THE PRINCIPLES OF SCIENTIFIC MANAGEMENT. By Frederick Winslow Taylor, M.E., Sc.D. New York: Harper & Brothers. Cloth, 8vo., 144 pp. Price, \$1.50 net.

JUST at the present time the big and, indeed, the little rubber manufacturers all over the world are tremendously interested in scientific factory management—that is "efficiency." The factory manager is a busy man, and if he gets up against a huge book full of abstruse formulae and long sentences, he scents theory rather than practical knowledge and shies. Mr. Taylor has written no such book. It is throughout exceedingly practical and, what is equally vital, is written in everyday concise English. Very rarely have we read anything on any industrial subject in which the author so thoroughly knows how to convey his meaning in short, convincing, readable sentences. He begins with the fundamentals of scientific management, and his first chapter is a most readable essay. He then goes on to the proofs of scientific management starting with the best type of ordinary management. From that, sometimes in quoted conversations with workmen, sometimes by illustration, he makes it so plain as to what can be done that the most skeptical reader will be charmed, and stirred.

The book, of course, is not written for rubber manufacturers particularly, but it is well worth their reading.

PROCEEDINGS OF THE SEVENTH INTERNATIONAL CONGRESS OF APPLIED CHEMISTRY, London; edited by Sir William Ramsay, K. C. B., F. R. S., acting president of the congress. Published by Partridge & Cooper, Ltd., London, E. C., England.

THIS CONSISTS OF 18 VOLUMES, one of which is devoted to the organization of the congress and the general meetings, together with a list of members from all parts of the world. The remaining 17 volumes contain more than 800 papers presented at the congress covering almost every chemical subject of present day interest. These essays, in English, German, French, and Italian, by men of every nationality, form a chemical symposium of wonderful value. Those that will perhaps most interest the rubber trade are in the volume entitled, "Legislation Affecting Chemical Industry," "Compulsory Working," by Prof. Albert Osterrieth, "The Influence of Patent Law on Chemical Industry," by E. F. Ehrhardt. In the volume on "Electro-Chemistry," "Electrical Testing Laboratories," by C. H. Sharp. "Inorganic Chemistry," "Colloid Chemistry and Some of its Practical Appliances," by Jerome Alexander, and "The Contribution of Chemistry to the Art of Road Building," by Allerton S. Cushman. Under "Analytical Chemistry," "An Improved Apparatus for the Rapid Estimation of Specific Gravity," by G. D. MacDougal, "Report of Work in Analytical Chemistry in American Universities and Colleges During 1906-08," by Prof. Philip Browning. Under "Organic Chemistry," "A Technical Process for Improvement of Low and Medium Grade Raw Rubbers," by Meyer Wilderman, Ph. D., B. Sc., "India-Rubber in North America—a Synopsis," by Henry C. Pearson.

OTHER BOOKS RECEIVED.

THE RUBBER CLUB OF AMERICA publish in convenient pocket size, the Constitution and By-Laws of the Club, together with a list of officers, standing committees and members to April, 1911. It is a neat, paper-covered booklet, 3½ x 6 inches, with 31 pages.

THE BOOK OF BIBENDUM (VOLS. I AND II), IN WHICH, TO THE accompaniment of grotesque illustrations, valuable information on the care of tires in general and Michelin tires in particular, is given. Published by the Michelin Tire Co., Milltown, N. J. Paper, 32 pages, 6 x 9 inches. Copies furnished on request to interested applicants.

U. S. FOR US. A READABLE LITTLE BOOKLET, DESCRIBED BY its publishers as "A Monthly Magazette, issued by the Advertising Department of the United States Tire Company, for exclusive circulation among members of the family"; it fully bears out its title. Paper, 7 x 4 inches, 24 pages.

NEW TRADE PUBLICATIONS.

BOSTON WOVEN HOSE & RUBBER Co., (Cambridge, Mass.) Newly-issued special catalogues of garden hose and of mats and matting and a condensed general catalogue, all of artistic execution and furnishing much valuable information concerning their productions, are issued by this company. Their convenient size, $3\frac{1}{2} \times 6\frac{1}{4}$ inches, will appeal to the ordinary user, while the completeness of the information they furnish and the tasteful design are fully in keeping with the company's publications.

The Wm. Powell Co. (Cincinnati, Ohio), send out catalogue and price list No. 10 of their engineering specialties, including a full line of valves, oilers, lubricators and other engineering specialties. It is compiled with evident care, dimension tables and sectional views, in blue print style, accompanying each article. Prices are given with each line and a telegraphic code is included in the book, which is octavo size, bound in cloth and contains 286 pages, with a 20-page supplement of valuable tables and useful information.

The Biggs Boiler Works Co. (Akron, Ohio), in a recently published and handsomely printed and illustrated catalogue No. 15, furnish information regarding the vulcanizers of every description, special plate and tank construction which they supply for rubber works, and their line of repair outfits; 16 pages, 9×6 inches.

Chas. E. Miller (Anderson, Md.). The vulcanizers and rubber specialties manufactured at the Anderson Rubber Works are described in a profusely illustrated catalogue they send out, valuable information of a practical character being embodied in the descriptions of the various articles its twenty-eight $6 \times 8\frac{1}{2}$ inch pages contain.

Byerley & Sons (Cleveland, Ohio), publish a booklet of 12 pages, $6 \times 3\frac{1}{2}$ inches, descriptive of their Byerlyte, a petroleum product that replaces asphaltum in the manufacture of varnishes, paints, pipe dipping, waterproofing for roofs, walls and foundations, etc.

Boston Belting Co. (Boston, Mass.), describe in an attractive booklet "Roxboro" Braided Non-Kinking Hose for air and water. Its advantages for every service are set forth in its sixteen $3\frac{1}{2} \times 6$ inch pages, which also quote prices for the different styles and sizes.

THE GOODRICH ROUTE BOOKS.—These exceedingly valuable volumes are the direct result of the work that the B. F. Goodrich Co. have been doing all over the United States in establishing road markers over routes travelled by motorists. A series is now being arranged for the Atlantic coast, another for the Middle West, and still another covering roads from the Mexican border on the Pacific coast as far north as roads go. Each book contains an abstract of the motor vehicle laws of the States, information regarding tires, repair, inflation, etc. It will also have tabulated, the locations of gasoline stations, repair garages, hotels and places where Goodrich tires are kept regularly in stock, together with excellent road maps indicating main roads, intersecting roads, steep up-grades, electric railroads, etc. Street and town maps will also be a valuable adjunct to the volumes. The B. F. Goodrich Co., Akron, Ohio. (Now in the press.)

THE DAILY PRESS AND INDIA-RUBBER.

The New York *Sun* announces that Wiedgerite (an asphalt) is sometimes high in sulphur and is said to be especially valuable for the manufacture of rubber substitutes.

The Waterbury (Connecticut) *American* comes out strongly against rough crushed stone spread on the roads and not rolled down, as doing great injury to automobile tires.

The Columbus (Ohio) *Dispatch* announces gravely that the roots of the guayule yield a juice from which rubber is extracted.

THE OBITUARY RECORD.

DR. PEHL OLSSON-SEFFER.

THE sad news comes from Mexico of the death of Dr. Pehl Olsson-Seffer, one of the best known of the foreign residents there, and one also whose name was familiar to the whole rubber world. Dr. Seffer was travelling by train on the Mexican Central Railroad from Mexico City to Cuernavaca, when the train was held up by revolutionists at El Parque, about twenty miles from Cuernavaca. They fired first into the engine and then into the Pullman. After a lull in the shooting Dr. Seffer attempted to leave the train and was shot and instantly killed. The revolutionists then drove the passengers from the cars and lining them up took all of their valuables. They then started them down the tracks, bidding them walk to Cuernavaca. The next day the *Jefe Politico* of Cuernavaca, disguised as a physician, secured the body of the unfortunate scientist and conveyed it to this city.



THE LATE DR. PEHL OLSSON-SEFFER.

Dr. Olsson-Seffer, who was 47 years of age at the time of his death, was born in Sweden, but educated in Finland, where his family had considerable property. At eighteen he graduated at Helsingfors University, but continued his studies there for a number of years. As newspaper journalist and editor, college professor, and business man, he was very active, particularly during the ten years that followed his graduation. He was an unusual linguist, being familiar with some ten languages. His travels were very extensive, covering the whole of Europe and most of the British possessions in the Far East. He was the author of many books and essays on scientific subjects and was a holder of fellowships in several universities. He came to the United States in 1903 and was instructor in systematic botany at the Leland Stanford University in California for two years. Here it was that he received his degree of PH. D. In 1905 he went to Mexico to install an experiment station and rubber laboratory for the La Lacualpa plantations at Soconusco. While in California he married Miss Helen Rolf, who was a teacher at the Stanford University. Some five years ago Dr. Seffer took up special expert work in connection with the various *Castilloa* plantations in Mexico. He also edited the planting notes in the *Mexican Investor*. Dr. Seffer is said to be a naturalized British subject, although born in Sweden. His death removes one who had great gifts in scientific lines and one, too, whose loss will be much felt.

A BOOK for rubber planters—Mr. Pearson's, "What I Saw in the Tropics."

Fire Hose--Criticism and Suggestion.

FROM a report of the Committee on Fire Hose delivered at the annual meeting of the National Fire Protection Association at the Waldorf-Astoria (New York), May 23, 1911. Submitted by W. C. Robinson, chairman of Hose Committee.

Fire hose is one of the most important factors entering into the problem of protection against loss by fire. It furnishes the most common means by which water is utilized in fire extinguishment by the trained men of our fire departments. The water works system, the fire department and the fire hose must operate together and each play its full part at time of fire, for the failure of any one at a critical time will destroy the efficiency of the others and a disastrous conflagration may result.

Fire hose may be considered as the flexible end of the water works system and this very quality necessitates that it be made of materials less durable and less reliable than the materials employed in the construction of the more permanent part of the water supply system.

Fire hose is subjected to a severe class of service, the great importance of which makes it essential that the utmost care be given to the quality of the materials and to the character of the workmanship employed in its manufacture, and yet, this is rarely the case, for fire hose is the one item regarding which but little is known by those who should be thoroughly well informed.

There has always been more or less of a mystery regarding the make up of fire hose and this has been fostered by those engaged in its manufacture. Very few buyers or users have had sufficient technical knowledge of the ingredients used or of their assembly to enable them to prepare specifications sufficiently well balanced to insure the receipt of fire hose of the quality desired. Municipal authorities and fire departments have been obliged to accept the statements of the manufacturers or their sales agents and to purchase fire hose without any real information as to the quality of the goods paid for.

This has led to the establishment of the present almost universal practice of selling fire hose under "trade names" or "brands" which are supposed to indicate, and in many cases undoubtedly have indicated the quality of the materials supplied. In consequence, where the better qualities of fire hose have in the past been secured, a very strong inclination is found on the part of fire departments to continue to buy the particular brand, which, in their opinion, has given good service. This is natural, and so long as the trade name represented the high quality of materials which was responsible for its good reputation, no danger existed, although the city is thus placing itself in a position where competition is limited.

Formerly the better grades of rubber were practically the only grades employed in fire hose for which any real contention covering quality was made. In fact, the only raw rubber available was of a high grade. Conditions are now very materially changed and crude rubbers of various grades have come into general use and processes have been developed for reclaiming rubber and admixing different grades for various purposes. This has resulted in the substitution of inferior rubbers in fire hose which has seriously affected its quality and reliability.

Another important factor which has undoubtedly influenced the quality of fire hose is the greatly increased demand for the best grades of rubber in other products, as, for instance, the inner tubes of automobile tires.

Under the present system of selling hose and with the purchaser in ignorance of proper requirements or means to enforce them, the temptation to use the cheaper and inferior raw gums and shoddy is obvious.

TESTS OF HOSE FROM THE FIELD.

A careful investigation covering most of the better known brands now being sold, furnishes undisputable evidence that the quality of fire hose, even of brands enjoying the best reputation, is inferior and the trend downward.

The results of extended tests and examinations of twenty-eight different brands of cotton rubber lined fire hose, including thirty-three different samples received from fire departments in practically all sections of the country, show important deficiencies in all, and clearly indicate that something should be done which will enable municipalities to equip their fire departments with a thoroughly reliable fire hose and afford owners and occupants of private properties some sure means of securing hose of the proper quality.

RUBBER LINING.

The most common as well as the most important defect brought out in the investigation relates to the rubber linings employed. Extended analyses show that the percentage of gum used varies from about twenty-six (26) to fifty-two per cent. and that low grade gums are almost invariably used. In only a very few cases could any claim for high grade rubber have been justified and these did not meet requirements which would constitute a reasonable minimum for rubber used in fire hose. Compounds which contain pure gum even of a high grade are often rendered inferior by the admixture of reclaimed rubber or shoddy and mineral oils or by the use of too little gum in the mixture.

The following summary of the results of the chemical and physical analysis of a total of thirty-two samples will serve to indicate the general quality of the rubber lining used in the hose tested:

Seventeen linings classify as very inferior grade.
Twelve linings classify as low grade.
One lining classifies as medium grade.
Two linings classify as fair grade.
One lining classifies as high grade.

Average tensile strength, all samples.....	7368 pounds
Highest average tensile strength for any hose.....	1,368 pounds
Lowest average tensile strength for any hose.....	199.5 pounds
Average elongation at breaking point for all samples	8.02 inches
Highest average elongation at the breaking point..	11.9 inches
Lowest average elongation at the breaking point....	4.2 inches

In only 12 cases could the samples be stretched to four and one-half (4½) times their original length without rupture and in only one of these was the recovery within the limits specified, ten minutes after release, notwithstanding the moderate test conditions.

The averages for all hose given above were obtained from over 130 test samples and the averages for individual hose from four samples, the test pieces being cut longitudinally from the tubes in all cases.

As rubber analysis is complicated and difficult the precaution was taken to have the results verified by an independent rubber chemist of standing. No important variations were found in the analyses.

High grade hose linings possessing the requisite aging qualities, strength and elasticity require a fine grade of raw rubber, fairly free from foreign matter, properly vulcanized with suitable mineral filler. Compounds containing 40 per cent of fine Pará rubber have been found to possess these qualifications.

Pure fine Pará gum remains today as in the past, the standard of quality. The fact that high grade compounds can be made from it is beyond question. In order, therefore, to secure a high grade hose lining of known quality and value, the safe course is to see to it that this grade of rubber is used in its manufacture. It should be remembered that the quality of the rubber lining exerts the greatest influence on the life or lasting property of fire hose.

COTTON FABRIC.

The defects found in the cotton fabric used in the hose tested while important in many instances were generally of secondary importance compared with those relating to the rubber portion of the hose. Wide variation was noted in the degree of excellence in weaving as well as in the character of the finished product. Very little, if any, staple cotton could be identified, that most commonly employed being considerably less than one inch in length. There was also evidence of material difference in the grade of the cotton used.

A difference amounting to nearly 80 per cent is noted between the weights of the finished fabric of double-jacketed fire hose, based on the difference between the weights of fifty feet of finished hose without couplings and the weights of fifty feet of lining and backing, estimated from the weights of short sections.

A wide variation was noted in the strength of the fabric as evidenced by the results obtained in the hydrostatic bursting tests of three-foot sections lying straight, some of the lighter fabrics showing an ultimate strength several hundred pounds higher than others in which more material was used and which showed no apparent defects.

Average bursting pressure of 32 samples.....	700.37 pounds
Maximum bursting pressure	975. pounds
Minimum bursting pressure	475. pounds

In only five cases did the bursting pressure fall below 600 pounds to the square inch. In one case the coupling failed before the hose burst.

Fabric was commonly employed which contained unsightly and injurious defects which should not have been allowed to pass even the most superficial inspection at the factory. Marked variation in the size of the fillers, unevenness in the tension and distribution of the warps and fillers, numerous knots or splices close together and considerable areas in which the weaving was very uneven or in which the fillers were skipped by the warp strands are among the defects most frequently noted.

The behavior of the hose in the hydrostatic pressure tests of the full length sections also indicated defects in weaving resulting in excessive elongation, warping and improper direction of the twist. Weakness due to the defects previously mentioned were also brought out in these tests.

The following is a summary of the results relative to fabric obtained in the hydrostatic pressure tests of full length sections at 300 and 450 pounds to the square inch.

ELONGATION AT 300 POUNDS PRESSURE.

Average elongation for all hose tested.....	49.1 inches
Maximum elongation of any length.....	81.87 inches
Minimum elongation of any length.....	21.87 inches

The samples tested were not exactly fifty feet in length, but did not vary from this dimension to any considerable extent.

TWIST AT 300 POUNDS PRESSURE.

Average amount of twist for all hose tested.....	.85 turns
Maximum amount of twist in any length.....	1.87 turns
Minimum amount of twist in any length.....	0 turns

In two cases practically no tendency to twist was noted. Of the balance, 20 samples twisted in a direction tending to tighten and 11 samples twisted in a direction tending to loosen the couplings.

WARPING AT 300 POUNDS PRESSURE.

Average amount of warping for all hose tested.....	12.33 inches
Maximum amount of warping in any length.....	45. inches
Minimum amount of warping in any length.....	0. inches

In only two cases did the hose show any tendency to rise from the table and writhe. In several cases it was necessary to straighten the hose and place it back on the table. The maximum deflections from the original position are given in the above and not the number of convolutions.

TESTS AT 450 POUNDS PRESSURE.

Of the thirty-three lengths tested, three failed at or below 450 pounds pressure.

In one of these the hose burst at 410 pounds, fifty-one and twenty-seven filler strands being ruptured in the inner and outer plies, respectively. Examination showed imperfect weaving at the point of failure.

In another case the warp strands in the inner ply started to break at 400 pounds and were broken quite generally in this ply at 450 pounds and to some extent in the outer ply. In this case the fillers were apparently uninjured.

In the third case the hose burst about three minutes after 450 pounds had been reached, seventeen and sixteen filler strands being ruptured in the inner and outer plies, respectively.

High grade hose fabrics possessing the requisite strength, wearing qualities and flexibility must be made of a good grade of cotton of fairly long staple. They should be even and firm in texture throughout, and free from all defects which will weaken the fabric at any point or result in unevenness in the surface presented to wear. The weaving should be such that the elongation and tendency to warp out of shape will not be excessive when the hose is under pressure and sufficiently well balanced to prevent excessive twisting under the same conditions.

CEMENT BACKING.

The defect next in importance and which was present in the hose tested to a very marked extent, relates to the cement backing and the influence this has on the character of the surface of the waterway and consequently on the efficiency of the hose. In the majority of the hose tested the backing was thin and insufficient to properly fill the interstices between the fillers and reduce the corrugations to a minimum. In many cases it was apparently of inferior quality and did not provide a reliable and sufficient bond

between the tube and the jacket. In one case the presence of dirt and numerous cotton strands between the backing and the fabric formed marked ridges in the surface of the waterway, prevented good adhesion and indicated carelessness on the part of manufacturer.

In many cases the lining was provided with heavy backing from two to four feet back from the couplings and was fairly smooth in those portions, the balance of the lining being badly corrugated.

The hydraulic friction loss was in excess of that allowable for good hose in ten cases out of twenty-six samples tested. In six cases it was excessive, amounting to over twenty pounds per 100 feet with 250 gallons per minute flowing. At higher velocities the difference between the allowable loss and that obtained in the tests of such hose generally increased quite rapidly. The surfaces of the waterway of hose in which the friction losses were 25.8 and 14.1 pounds per hundred feet with 250 gallons per minute flowing. The allowable loss for good hose at this rate on flow is about 15 pounds per hundred feet.

Average friction loss of 26 lengths tested.....	16.1 pounds
Maximum friction loss in any length.....	25.8 pounds
Minimum friction loss in any length.....	12. pounds

COUPLINGS.

The tests and examinations of the couplings attached to the hose submitted show that this item is also commonly slighted not only in regard to the quality of the castings and workmanship but in the attachment of the couplings to the hose.

The average weight of the couplings for 2½-inch hose was 5 pounds 4.2 ounces, including the expansion rings. The maximum weight for any set of couplings was 6 pounds 4.77 ounces, minimum 4 pounds 10.18 ounces. In 14 cases the couplings were overweight and in 13 cases they were underweight.

The castings were not analyzed, but their color indicated that the percentage of copper was low in eleven cases. In nearly all, the tail pieces and expansion rings were shorter than specified in the standard and in some the metal was not strong enough to resist the stress of expanding the binding rings without rupture or material distortion. In several cases the corrugations for binding the hose contained sharp projections due to sand left in the moulds and in several cases the corrugations were sharp enough to cut the hose fabric.

The machine work was generally well executed and the castings well finished, but sufficient care was not always exercised in obtaining the proper thickness of metal in all portions. In three cases the couplings were ruptured in the bursting tests of three-foot sections, the male threaded ends being blown off at 841, 617 and 542 pounds to the square inch, respectively. Examination showed that the metal was less than 1-16 inch in thickness at the point where the threaded portion joins the tail pieces—a section entirely too thin to safely withstand possible conditions of service.

In one or two cases, couplings made by different manufacturers were not interchangeable, although they were sold to the same city.

The couplings were attached to the hose so as to withstand the 300 pounds pressure test without leakage in 17 cases out of the 33, careless workmanship being generally responsible for the defects. The most prominent defect resulting in leakage at the couplings was the absence of or imperfect installation of rubber washers between the expansion rings and tail pieces, although in several cases where the washers were properly installed, the rings were insufficiently expanded to make a tight joint. Liberal leakage was noticeable past the tail pieces at pressures as low as 10 pounds to the square inch and sweating through the fabric, due to leakage around the ends of the hose, was noted as far as 13 feet back from the couplings. Where the couplings were tight at 300 pounds they were usually tight at 450 pounds to the square inch.

The cotton fabric was doubled back in the coupling in many cases and was quite badly cut by the corrugations in several instances. The internal diameters at the tail pieces of some couplings were too large and the rubber linings were cut part way through by the expansion rings in quite a number of cases.

Loosely fitted gaskets were employed in many of the couplings. These were forced back into the recess in the swivel at pressure as low as 90 pounds to the square inch, causing bad leaks in almost every instance. The gaskets projected into the waterway in most all of the couplings, amounting to 1-32 to 1-16 inch at all points in many instances.

From the foregoing it will be seen that the fire hose now being received by fire departments throughout the country is not by any means all that it should be.

The present general practice of purchasing hose by "brand"

or "trade name" under a short term guarantee is chiefly responsible for the present unsatisfactory condition of fire department hose. Under the guarantee system the hose dealer need only figure on a quality of hose just about good enough to last during the term of the guarantee and a few replacements during the term can probably be made at less cost than to furnish hose which would not have to be replaced. The guarantee serves to conceal the real merit of the product. Behind it the quality of the materials and workmanship may be manipulated with but little regard for the purchaser. It usually covers only defects of manufacture, and the more important matter of the safety of those who must use the hose or any damage to property, resulting from its failure, is, of course, not contemplated.

The solution of the difficulty lies in the abolishment of the guarantee system and the purchase of hose under a method by which the buyer can be fully informed as to the quality of the goods necessary for his purpose and as to all essential details of the tests and examinations which will enable him to see that he obtains this quality. This can best be accomplished by the use and enforcement of proper specifications.

It has been argued that specifications drawn by those not engaged in the manufacture of hose are theoretical, impracticable and wholly unsuitable and that the long experience of the manufacturer has placed them in possession of information relative to the materials entering into use and essential details of manufacture, which enables them to produce superior hose in a manner known only to themselves.

Up to a certain point these contentions are undoubtedly true, particularly those relating to the details of manufacture, but when the statement is made, at least inferentially, that this very expert knowledge of the details cannot be utilized when materials of the best quality are specified, such claims should be discounted as possibly prompted by too selfish a motive.

The performance of fire hose in actual service has been observed for many years and it has not been difficult to attribute the results to the causes which produce them. Experienced analysts have pulled apart in the most searching way that which the manufacturers have built and have become sufficiently expert to place the causes for results, both good and bad, in their respective positions and to assign to them their proper values. This also without intimate knowledge of the details of manufacture, but perhaps with a more thorough comprehension of the reasons for the results observed.

The following specifications for the construction of fire hose are presented for adoption with the utmost confidence that their strict enforcement will result in the production of a thoroughly reliable and efficient fire hose. They differ from the specifications heretofore adopted at the suggestion of the manufacturers and designated by them as minimum requirements, mainly in the items covering the quality of the rubber and the staple of the cotton to be employed in the fabric.

Aside from closer lines covering the quality of materials, the specifications are sufficiently broad to permit the maker to employ the expert knowledge as to the details of manufacture which he may have gained by experience. They do not require the best fire hose which can be made, but do constitute a reasonable necessary criterion of quality suitable for enforcement by American fire departments under present day conditions.

The use of specifications carries with it the obligation to see that they are enforced. To effectually accomplish this necessitates that the purchaser have those in his employ who are competent to pass on the subject or that he employ experts or that part of the work be done by those in his employ and part by outside experts.

[Specifications for cotton rubber lined fire hose, for rubber fire hose, and for mill hose, were here taken up and passed with only minor amendments. They are practically the same as those with which the trade are familiar and which have been already discussed in THE INDIA RUBBER WORLD.]

It is probably safe to say that no city or municipality is today properly equipped to render competent judgment on the quality of rubber furnished in fire hose, nor can it be expected that the vast majority of those purchasing fire hose ever will be, for considerable experience and a special knowledge of the chemical and physical properties of rubber is essential.

The problem is not radically different from those with which the buyer is confronted in the purchase of many other materials furnished under specifications. He is able to avail himself of the product of such manufacturers as are in a position to furnish reliable evidence that their goods are in full compliance with the specifications, or, he can examine and test the materials before acceptance, calling in experts to pass on any particular features which he is not qualified to judge.

All of the essential items covering materials and workmanship are included in the specifications, as are also the minimum test requirements. With the exception of the items covering the

rubber, comparatively little experience and but little test apparatus is required to obtain the necessary information as to compliance of fire hose with the specifications.

In the matter of the rubber compound the most economical, satisfactory and comprehensive method of securing the necessary data on quality and compliance with the specifications, is undoubtedly through the employment of an agent of the buyer stationed at the factory and supplied with the necessary facilities for observing and checking the ingredients and manufacturing process. Chemical and physical analysis of the completed material are valuable as counter checks on such service, but are not its equivalent as a practical and wholly reliable inspection method.

Fire hose is certainly of sufficient importance in the general economy of things to warrant an equal position with, if not precedence over other industries in securing the proper quality of the materials entering into its manufacture.

The steady increase in the concentration of values in congested districts and the large number of recent fires of uncommon magnitude serve to keep constantly before us the vital importance of the strictest attention to the reliability of all necessary safeguards. The question of the reliability of fire hose has assumed an importance far beyond that of any special interest or industry, no matter how large it may be. In fact, from the view point of its possible influence for good or bad in the safeguarding of our cities, this question is of national importance, for the destruction by fire of any one of a number of our larger cities would unquestionably prove a national calamity.

INDIGENOUS RUBBER AT THE RUBBER EXHIBITION.

AT a well-attended meeting of gentlemen interested in indigenous rubber, held in London recently, the desirability of taking some action to secure the proper representation of indigenous, as compared with plantation rubber, at the approaching rubber exhibition, was discussed at length. It was pointed out that of the world's entire production of rubber, estimated as approximating 80,000 tons, only about 8,000 tons, or 10 per cent., was plantation rubber. The indigenous rubber movement had been started, said the speaker, the Earl of Errol, K. T., C. B., to make known the special merits of native rubber, and those interested in Brazilian, Bolivian and African rubber should make an effort to make a big exhibit at the forthcoming International Rubber Exhibition. The Brazilian Government, he announced, had already made a substantial contribution to the undertaking, and if those interested in the *Hevea Brasiliensis*, of Brazil, Peru and Bolivia would join those interested in the *Castilloa* of Mexico, America would be well represented. Those interested in the *Funtumia* and *Landolphia* rubbers of Africa, should also join, which would make the representation of native rubber complete.

A resolution "that an executive committee be formed, composed of gentlemen interested in indigenous rubber, to take steps to establish a collectors' exhibit of native rubbers at the International Rubber Exhibition to be opened in the Agricultural Hall on June 24, 1911," having been unanimously adopted, the following committee was appointed with power to add to their number, to carry out the scheme regarding the exhibition of native rubber:

Sir F. Newnes, M. P., Sir Thomas Holdich, Messrs. A. Radcliffe, A. Bethune, R. A. Gray, J. A. Douglas, J. T. Dunleavy, J. M. Boustead, H. Hamel Smith, J. Darnley Taylor, Fawcett, Edwards and H. H. Vasconcellos.

Several cases having come before the board of United States general appraisers at New York, involving the rate of duty on imported waterproof coats, an opinion has been given that such goods are dutiable as manufactures of rubber under paragraph 463, Tariff act of 1909, which imposes a rate of 35 per cent. *ad valorem*.

New Rubber Goods in the Market.

A PRACTICAL REINFORCEMENT FOR TIRES.

A TIRE re-inforcement that is claimed to be light, resilient, inexpensive and capable of materially increasing the longevity of a tire, is illustrated herewith. Made of rubber, covered with a good quality of duck, it is endless in form and exactly fits the inside of a standard sized casing. It is in-



Thermoid Tire Reinforcement.

tended for insertion between the outer casing and the inner tube and it is claimed that its form and material will not in the least impair the resiliency of the tire. The effect of this device on the distribution of the strain proves equally effective in the case of either new or old tires, and where a weak spot exists it is very apt to prevent a disastrous blow out. A claim of at least 40 per cent. increase in the life of a new is made for the re-inforcement, which answers, at a small part of the cost, every purpose of a spare tire, a fact that will appeal to every motorist. [Thermoid Rubber Co., Trenton, New Jersey.]

THE MURRAY TOP RAISER.

HOPEWELL BROTHERS, whose rubber specialties in connection with automobiles are well known, are out with another novelty, a top raiser and lowerer. The device is very simple, enabling one person to put up or lower the heaviest top without assistance. Neither does it disturb the occupants of the car, nor

HOPEWELL BROTHERS
NEWTON, MASS.
U.S.A.

THE MURRAY TOP RAISER.



do the bows mar the car body anywhere. The device is simply a steel rod with a bronze sliding arm and two prop nuts. The last mentioned are substituted for the prop nuts regularly used. To them the rod and sliding arm are attached. Then standing on one side of the car one man can raise or lower the top with the greatest ease. The device will fit any car. [Hopewell Brothers, Newton, Massachusetts.]

A DRESSING FOR RUBBER.

THE shabby appearance of rubber tires, steps, mats, running boards, tubing, etc., often detracts materially from the smart appearance of a car and is an eyesore to the owner. To apply some of the preparations sold for cleaning rubber, is to risk its destruction and "Slikup" is offered as free from such objections while answering every requirement. It is claimed that while it beautifies the appearance of the rubber it protects it from the effects of sunlight, fills up air holes, prevents sand blisters and imparts a fresh, agreeable color to the rubber substance. While successive coats, as they may become necessary are applied, there is no accumulation on the surface, as in the case of paint; rain has no effect on it; it is elastic enough to stretch and bend

with the rubber and is supplied in slate and cream colors. It comes in tins, ready for use and is easily applied. [N. B. Arnold, 98 Montague street, Brooklyn, N. Y.]

INDIA STRIPE GARMENTS.

A FEW years ago the leading light weight rubber garment was known as the "India Stripe."



SHOWING VISOR TURNED IN.
PATENTED

ARCO CAPE
MANUFACTURED BY
APLEY RUBBER CO.

It was not only exceedingly pretty, but very light and universally popular. For a time the people's taste drifted to heavier goods and to other kinds of rain protection. It is interesting to note that popular fancy has again turned toward these goods and the demand is rapidly increasing. In response to this call the Apsley Rubber Co. (Hudson, Massachusetts), who were the originators and patentees of the India Stripe process, are again manufacturing them in large quantities. The garments are made particularly in the sizes and styles adapted for misses and children. The accompanying illustration shows one of many of these styles called the "Arco" cape with visor, which is covered by the company's patent.

A HEAVY-WEAR SOLE FOR RUBBER BOOTS.

For irrigating work and general farm purposes, a substantial sole is indispensable for a rubber boot. Such is the the Spearhead Spading Sole illustrated herewith. A heavy shank, which



SPEARHEAD SPADING SOLE FOR RUBBER BOOTS.

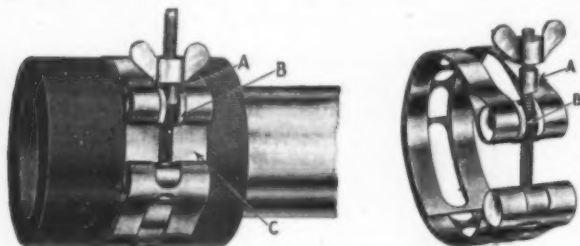
this sole provides, means extra life to a rubber boot, its tendency being to force the boot back into shape, after bending the foot, thereby preventing wrinkles in any one place, which cause blisters that ultimately break and destroy the usefulness of the boot. [Hood Rubber Co., Boston, Mass.]

THE "PUSSY FOOT" NON-SKID TIRE.

DERIVING its title from the fact that as the claws of a cat are concealed in her foot until she needs them, the metal studs with which it is equipped are submerged below the surface of the rubber, and only appear above it when in action, the safety non-skid tire is known as the Pussy-foot tread tire. Examination of its working surface fails to reveal any of the protuberances familiar in most types of non-skid tires, but when needed they make their appearance and being of steel, hollow and cup-shaped, present four cutting edges, which it is claimed, will prove an efficient stop to skidding under all circumstances without affecting the resiliency of the tire. [Safety Tire Co., New York.]

THE CATELAIN CLAMP.

For attaching hose to metal pipe, nozzles, etc., the Catelain Clamp, illustrated herewith, is said to possess special advantages. It takes but a few seconds to attach or detach it and the pressure it exercises on the hose is even over all its circumference. It is



THE CATELAIN CLAMP.

claimed that it cannot slip, loosen or cut the hose and that in application it is simplicity itself. It is illustrated herewith detached and in operation. [A. C. Catelain, 1447 Indiana avenue, Chicago, Illinois.]

SHOOTING WITH RUBBER PROJECTILES.

The pop-gun is a time-honored toy that every country boy knows how to make from a piece of elder wood. The gun illustrated herewith is also a pop-gun, and like its venerable ancestor creates a disturbance with the aid of a cork attached to a string. But it does something else, something that will endure it to the heart of every small boy who has the intuitive love for something that will "shoot." It propels a small soft-rubber ball



THE MARKHAM AIR RIFLE.

(9-16 of an inch in diameter) with astonishing accuracy, for 25 feet, and furnishes excellent sport for target shooting, shooting at military tops, etc. It is very well made and handsomely finished, presenting an attractive appearance and sells at a very low price. It should be added that the rubber ball, which is soft, will not do any damage. [The Markham Air Rifle Co., Plymouth, Michigan.]

THE "TUXEDO" LADIES' RUBBER.

In the accompanying illustration a rubber shoe for ladies' wear is shown that is expected to prove popular. The top of Jersey cloth, with button effect, the short vamp and high heel, make it suitable for the prevailing mode in foot wear and give it an attrac-



THE "TUXEDO" RUBBER SHOE.

tive appearance. The fact that the "Tuxedo" rubber—which is the name conferred upon it—is fleece lined, will adapt it particularly for evening wear, during the winter months. [The Beacon Falls Rubber Co., Beacon Falls, Conn.]

THE LATEST HIGH ARCH RUBBER.

With a view to meeting the demand for a rubber that will fit the shoes with 1¾ or 2-inch heels fashion dictates for ladies' wear, the High Arch Croquet; illustrated herewith; has been

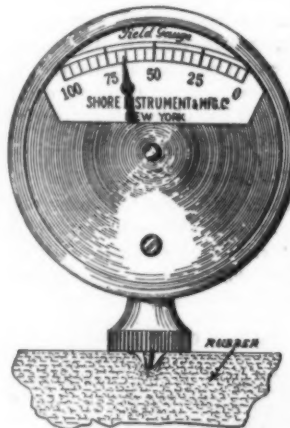


HIGH ARCH CROQUET RUBBER.

placed on the market. It is a new last, the latest in "high arch" rubbers, its graceful lines being especially adapted to appeal to the feminine taste for the beautiful, while its form makes the wearing of rubbers with the prevailing styles of high-heel shoes practicable and comfortable. [L. Candee & Co., New Haven, Conn.]

THE SICO YIELD GAUGE.

In determining the hardness, flexibility or elasticity of india-rubber the methods commonly pursued are biting the sample with the teeth, compressing it between the finger and thumb, or sticking the finger nail into it, which certainly savored sufficiently of rule of thumb to be designated as empirical and possessed the serious disadvantage of permitting of no record or communication between parties interested as to hardness or softness of the specimen.



SICO YIELD GAUGE.

The Sico Yield Gauge, illustrated herewith, reduces this test to a uniform, scientifically accurate and recordable certainty. When its sensitive blunt point is pressed against the rubber to be tested the amount of pressure required to force it into the rubber, in other words, the resistance it encounters, is recorded on the dial on a graduated scale. Normally, the indicating hand

is stationary at 100; when a very soft substance is under test, there may be only a deflection of 5 degrees, which indicates the extent of the resistance to yield, or, in other words, the hardness of the substance. The cost of the instrument is small, it is compact and easy to operate and understand and as a measurer of pliability is likely to prove useful to buyers and users of rubber in every form. [Shore Instrument & Mfg. Co., 555 West 22d street, New York.]

THE "MYSTIC" SPRAY NOZZLE.

The Mystic nozzle, which we illustrate herewith, is advertised as "the cheapest spray nozzle on the market." The manufacturer claims that it gives an almost perfect spray with a good, full stream. It doesn't shut off the water. This, however, would be

considered by most rubber men to be an advantage rather than otherwise as it saves the hose. The Mystic is full size and weight and is probably the most popular spray nozzle on the market today owing to its efficiency and low price. [W. D. Allen Manufacturing Co., Chicago, Illinois.]



A TIRE PRESERVER.

WHERE a tire shows weakness or has blown out it is frequently discarded, although there may still be a good wear in it. Comparatively few tires wear through on the treads before they give out on account of fabric breaks. The fabric breaks that are on the inside of the casing cause the tube to chafe and it gives way when least expected. In the accompanying illustration is shown a device by means of which a tire showing signs of weakness is



BOSTON TIRE AND RUBBER CO.'S TIRE PRESERVER.

strengthened and its life prolonged. Made endless, of several plies of fabric and rubber vulcanized together and molded to fit the inside of the casing it is coated on the outside with cement so that when the tire heats by friction in running it becomes part of the casing itself and makes its interior as smooth as when new. Easily inserted and reasonable in cost it goes a good way to prevent tire troubles and adds life to the tire. It can be obtained in 20 sizes, ranging from 28 x 3 to 36 x 5 and makes the casing good until completely worn out. [Boston Tire and Rubber Co., No. 184 Friend street, Boston.]

A NEW "KNOCK" LOCATOR.

WHEN the human machine goes wrong and the trouble is not easily apparent, the physician attaches one end of a stethoscope to his ears, and sounds various parts until the seat of the trouble is located. Some such reliable device for machines not human, such as automobiles has long been needed. It is found in the



vibrator, which is a scientifically designed sound intensifier. It is made of rubber and metal. In use the ear tips are put into the ears so as to shut out external sounds, then the corrugated diaphragm head is placed against the machine case and moved about until the sound is absolutely located. By the way, the device is of use in any factory particularly in locating pounding in steam engines due to water in the cylinder, loose packing rings, or defects in valve setting. [Hopewell Brothers, Newton, Massachusetts.]

AUTO AND AVIATION WRAPS.

AMONG the ladies' new wraps for aeroplaning or motoring displayed at John Wanamaker's store are some very smart imported raincoats. One, called the "Bleriot" is of heavy corduroy, dark green or brown, and with a rubberized lining; another, the "Mercedes," and the "Simplex" are of silk rubber; the "Renault" of satin rubber and the "Cycliste" of crepe de cygne. These last are in colors of tan, champagne and blue, and are not expensive

RESULTS OF THE GRANT PATENT DECISION.

THE action of the Consolidated Rubber Tire Co. concerning infringers of the Grant patent is awaited in the trade with considerable interest. Naturally neither the company nor the 15 or more rubber companies that are said to have been making solid tires that infringed are explaining their respective positions.

The Grant patent has some two years yet to run and it is a question whether either side would take much interest in licenses, although it is understood that the Consolidated company has no objections to granting them. Damages, if granted, would be assessed for a period covering six years from the present time, in case suit had not been brought previously. Some, however, were instituted about four years ago which would make the period ten years.

The company seemed to be engaged in conference with various solid tire manufacturers with the idea of getting an estimate of the poudage made by each company during the last 6 to 10 months. For a guess the plan is to be able to secure through damages at least enough to remunerate the company for its very expensive law suits which have been industriously prosecuted for some years past.

The historic Grant patent was issued to Arthur W. Grant, February 18, 1896. It has been the subject of much litigation. The patent was sustained in the following cases: The Rubber Tire Wheel Co. vs. The Columbia Pneumatic Wheel Co.; the Consolidated Rubber Tire Co. vs. Finlay Rubber Tire Co.; the Consolidated Rubber Tire Co. vs. Firestone Tire & Rubber Co.; the Rubber Tire Wheel Co. vs. Milwaukee Rubber Works; the Diamond Rubber Co. of New York vs. the Consolidated Rubber Tire Co. The patent was also declared valid in the Circuit Court of Appeals of the Republic of France, sitting at Paris, in 1902. It was held invalid in the Goodyear Tire & Rubber Co. et al., vs. the Rubber Tire Wheel Co., and in the Rubber Tire Wheel Co. vs. Victor Rubber Tire Co.

UNITED STATES RUBBER CO.'S ISSUES.

TRANSACTIONS on the New York Stock Exchange for five weeks, ending May 27:

COMMON STOCK, \$25,000,000.

[The treasury of a subsidiary company holds \$1,334,000.]

Last Dividend, April 30, 1900—1%.

Week April 29	Sales 5,500 shares	High 40 $\frac{3}{4}$	Low 38 $\frac{3}{4}$
Week May 6	Sales 5,900 shares	High 42 $\frac{1}{4}$	Low 38
Week May 13	Sales 3,650 shares	High 40	Low 38 $\frac{3}{8}$
Week May 20	Sales 14,100 shares	High 41 $\frac{1}{8}$	Low 39
Week May 29	Sales 8,370 shares	High 42 $\frac{1}{2}$	Low 41 $\frac{1}{4}$

For the year—High, 47 $\frac{1}{2}$, March 1; Low, 36, January 6.

Last year—High, 52 $\frac{1}{2}$; Low, 27.

FIRST PREFERRED STOCK, \$39,824,400.

Last Dividend, April 29, 1911—2%.

Week April 29	Sales 550 shares	High 113	Low 111 $\frac{1}{2}$
Week May 6	Sales 830 shares	High 113 $\frac{3}{8}$	Low 113
Week May 13	Sales 505 shares	High 112 $\frac{1}{2}$	Low 112
Week May 20	Sales 1,100 shares	High 114	Low 112
Week May 29	Sales 1,300 shares	High 114	Low 113 $\frac{1}{2}$

For the year—High, 114 $\frac{1}{2}$, April 10; Low, 109 $\frac{1}{2}$, January 18.

Last year—High, 116 $\frac{1}{2}$; Low, 99.

SECOND PREFERRED STOCK, \$9,965,000.

Last Dividend, April 29, 1911—1 $\frac{1}{2}$ %.

Week April 29	Sales 725 shares	High 77 $\frac{3}{8}$	Low 76 $\frac{1}{2}$
Week May 6	Sales 600 shares	High 77 $\frac{1}{2}$	Low 77
Week May 13	Sales 600 shares	High 76 $\frac{3}{8}$	Low 74 $\frac{1}{2}$
Week May 20	Sales 3,100 shares	High 77 $\frac{1}{2}$	Low 76
Week May 29	Sales 100 shares	High 77 $\frac{3}{4}$	Low 77 $\frac{3}{4}$

For the year—High, 79, March 1; Low, 72 $\frac{1}{4}$, January 31.

Last year—High, 84; Low, 59 $\frac{1}{2}$.

SIX PER CENT. TRUST GOLD BONDS, \$19,000,000.

Outstanding of the 1908 issue of \$20,000,000.

Week April 29	Sales 38 bonds	High 105	Low 104
Week May 6	Sales 153 bonds	High 105	Low 104 $\frac{3}{4}$
Week May 13	Sales 33 bonds	High 104 $\frac{1}{2}$	Low 104 $\frac{1}{2}$
Week May 20	Sales 33 bonds	High 104 $\frac{1}{2}$	Low 104 $\frac{1}{2}$
Week May 29	Sales 55 bonds	High 104 $\frac{1}{2}$	Low 104 $\frac{1}{2}$

For the year—High, 105, April 29; Low, 102 $\frac{3}{4}$, March 5.

Last year—High, 106; Low, 102 $\frac{1}{4}$.

THE RUBBER TRADE AT AKRON.

BY A RESIDENT CORRESPONDENT.

THE tire departments of the various Akron rubber factories are all running full force at least, and many overtime. The mechanical goods departments are running well, except the various rubber goods that enter into railroad supplies, which are working less than full time.

A little over a year ago, The B. F. Goodrich Co. started a force of men out on the road placing a special guide post every three miles along main highway roads, from Cleveland to New York City. This was a beginning. Since then vans and crews have been erecting markers in all of the Eastern states, throughout the middle West, from the Mexican border the whole length of the Pacific coast, in fact, everywhere in the United States where automobiles are run. To do this, topographical maps of the United States Geological Survey were used and routes carefully planned in advance. Incidentally, the road marking crews have each a card indexing system by which they note road conditions, street and town accommodations, etc., etc. This route marking enterprise is by far the most comprehensive and original advertising campaign ever inaugurated. It also has what very little advertising propaganda possesses—a distinct and constant value to the public at large.

As a test for the Goodrich wireless tires, a five-ton motor truck with a three-ton load started in March from Denver for San Francisco, with a return trip scheduled through Salt Lake City, Chicago and New York. The tires are single in front and twin in the rear.

The moving pictures illustrating rubber gathering in South America, which The B. F. Goodrich Co. (Akron, Ohio), are showing all over the United States, are of the greatest educational value. They are most carefully prepared, are absolutely true to life, and are explained by one of the bright young men of the Goodrich staff. Needless to say crowds attend every exhibition.

A. H. Marks, general manager of the Diamond Rubber Co., is building a beautiful summer cottage at Marblehead, Mass.

The Cord tire, the production of which by the Diamond Rubber Co., has for a long time been discussed in automobile circles, has made its appearance. The tire is made and sold under exclusive rights obtained from the English manufacturers, whose product is known as the Palmer Cord Tire. The owners of the American rights will call their product the Diamond Silvertown Cord Tire.

E. L. Winipenny, formerly of New York, has gone to the Baltimore office of the Diamond Rubber Co. as travelling salesman. F. T. Luth, of Cincinnati, has gone to the Minneapolis office as travelling salesman. J. E. Ailes has resigned his position in the operating department of the Diamond and is succeeded by T. L. Lussen, of New York. J. H. Elgin has gone to the Philadelphia office to take charge of the credit and collection department. C. S. Davis is the new Diamond adjuster at Cleveland. W. A. Alexander has been transferred from the local adjusting department to the Albany office as temporary manager.

Litigation which has been carried on almost continuously during the last twelve years concerning the validity of the Grant Patent is said to have resulted in placing the Goodyear Tire and Rubber Co. in the unique position of not having to pay a royalty to the Consolidated Rubber Tire Co. on tires made under this patent. This is the result of a decision handed down by the Federal Court of Appeals at Cincinnati, Ohio, in May, 1902, which decision the United States Supreme Court, in reviewing the decision of the Appellate Court, refused to reconsider.

Up to date the Goodyear Tire and Rubber Co. has 120 branches and agencies in the United States and Canada, 15 of which have been opened this year.

The Biggs Boiler Co., of Akron, Ohio, is erecting a \$50,000 factory addition. The new addition contains the boiler shop, machine shop and power plant. The building will be equipped with electric travelling cranes and hydraulic machinery. The structure will be of brick, 120 feet by 225 feet.

A leading manufacturer estimates "Akron's tire bill at \$140,000,000 annually: casings, \$77,500,000; tubes, \$34,320,000; solid tires \$28,600,000. This gives employment to 6,100 men, exclusive of administrative and executive offices, and consumes at least 12,500 tons of fabric, and 37,500 tons of rubber composition.

The various Akron rubber factories have taken on new life in their different lines of social and athletic diversions. Each company has its own star ball team, the Diamond Tire and Rubber Co. having had during the last few years a strong amateur team, Bill Swartz, manager of the Nashville Team with the Southern League, being one of its members.

The Lowenthal Co., of Akron, Ohio, scrap rubber merchants, has moved into its new warehouse at the corner of Broadway and Exchange street.

The latest Ohio corporation is the Knight Tire and Rubber Co., of Canton. G. F. Knight, of the Knight Manufacturing Co., is at the head of this new company.

Alexander Adamson, under dates of April 19, 1910, and April 4, 1911, has patented a new and improved vulcanizing press. It is built of steel and the head is fitted with a self-sealing gasket. The method of sealing the vulcanizer is claimed to be a time-saving feature.

THE RUBBER TRADE IN SAN FRANCISCO.

BY A RESIDENT CORRESPONDENT.

AMONG the merchants in the rubber trade, the consensus of opinion is that business is steady, but quiet. Conditions are not as flourishing as they might be, nor as it is expected they will be when work actually commences towards construction on the world's fair site, but there is the usual and normal run of business in the city, and the demand from all of the interior points continues good. Things now are as they have been for many months past, with the country in a more flourishing condition than the cities. Taking the coast as a whole conditions are very good in the southern part of the state, normal in San Francisco and the north, and on through Portland and nearly all of Oregon, but a little quiet in Seattle, and the major portion of Washington, outside of Spokane, which is just now a very busy city.

E. V. Carey, one of the Selangor, Federated Malay States, rubber planters in the Far East, has been a recent guest at the Palace Hotel. He is on his way from the Orient to be present in London during the coronation ceremonies.

C. E. Mathewson, Pacific coast manager of the Diamond Rubber Co., announces the opening of a direct factory branch in Sacramento, Cal., at No. 728 I street. His is the first tire factory to recognize the importance of Sacramento as a coming center for the automobile industry. The store is fully equipped with automobile tires, and with a complete repair factory.

There is a strong demand for merchandise from Japan at the present time, partially due to the tariff which goes into effect in July. R. H. Pease, Jr., of the Goodyear Rubber Co., has returned from a trip to the Orient. He states that it was a matter of surprise to him to see how extensively the Japanese are now going in for the manufacture of rubber products. They are especially active in the manufacture of packing. While at

Kobi, he attended an industrial exhibition, and there saw a complete line of packings and asbestos goods, all of Japanese manufacture. It is his opinion that the Japanese will soon have mastered the art of manufacture and that the demand for American goods will rapidly decrease. R. H. Pease, Sr., who recently returned from his eastern trip, states in regard to business conditions that he finds things running along smoothly. There is no boom, he says, but business is improving in comparison with that of last year. Naturally the boot and shoe business is a little dull, because more or less of the retail merchants are carrying over stocks. This is especially true around Portland, and in fact all through the northwest.

A. T. Kalas now handles the Globe line of the Globe Rubber Co., and has his offices at No. 1515 Main street. Mr. Kalas has been selling mining and quarry machinery and supplies for the past 18 years all along the coast, is a prominent Elk, and is well known everywhere, so that the success with this line is assured.

The Barton Packing and Rubber Co. is retiring from business, and their entire stock will be disposed of. Schwartz & Kenrick, the factory men from the Barton company now are the proprietors of the new Panama Rubber Co. Frank Seton, who was formerly with Barton, has gone with the Goodyear Rubber Co. The Barton stock has been assigned to Mr. Jones, of the Crude Rubber Co.

The Goodyear Rubber Co.'s factory on Spear street has been enlarged and improved by the addition of mixing mills, calender and tubing machinery.

The Acme Machine Works at No. 19 Tehama street, have a new kind of automobile tire. It is filled with 26 bulbs, which can all be inflated at once. When there is a puncture, one bulb at a time can be removed without touching the others. The first tire has just been turned out, manufactured at the Goodyear Rubber Co.'s factory, on Spear street.

Dales D. Tripp, a well known rubber man connected with the Bowers Rubber Works, had the antlers placed on his head Monday night at the Alameda Lodge, 1015 of the Elks.

The Gutta Percha and Rubber Manufacturing Co. report a big sale of fire hose to the city of Alameda.

Mr. Griffiths, representing the American Manufacturing Co., of Emeryville, Cal., states that his firm is doing a very good business, especially at the present time in fire hose. They were recently awarded a contract for 15,000 feet for San Francisco and 1,000 feet for the Mare Island Navy Yard.

Mr. John W. Macomb, secretary-treasurer of the New York Belting and Packing Co., who has been associated with the company for twenty-one years, has just made his first visit to the Pacific coast. He expressed his surprise and pleasure at the industrial growth and extent of the western territory.

W. J. Gorham, of the Gorham-Revere Rubber Co., reports that the firm has now recovered from the confusion which has attended the consolidation of the three stores—the Gorham, the Revere and the Pacific Coast Rubber Co., and that things are running along nicely and profitably. He has just been conferring in this city with Mr. Hamlin, manager of the Seattle store and general manager for the northwest, and E. H. Helm, manager of the Gorham-Revere Rubber Co., of Los Angeles. Mr. Gorham and Mr. Hamlin will leave today for the north, to perfect their organization there.

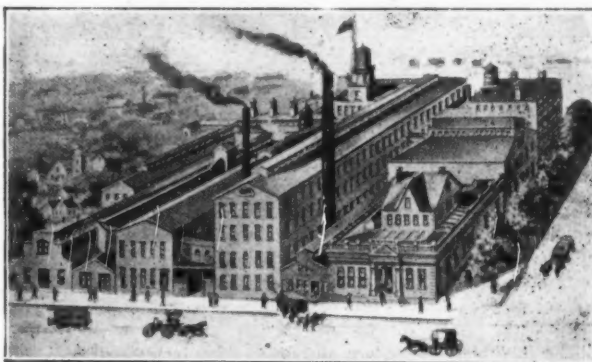
CONSHOHOCKEN'S NEW RUBBER FACTORY.

J. ELLWOOD LEE, known to the hospital trade throughout the world, has been in the rubber business more or less for many years, both in Pennsylvania and through his connection with the great firm of Johnson & Johnson, New Brunswick, New Jer-



PRESENT PLANT OF J. ELLWOOD LEE CO., CONSHOHOCKEN, PA.

sey, of which he is vice-president. It is now announced that he will branch out very extensively in rubber manufacture. To this end he has purchased the entire business of the J. Ellwood Lee Co., with two factories located at Conshohocken, Pennsylvania, for \$1,500,000. He is now organizing under the laws of the State of Pennsylvania a company to be known as the Lee



PRESENT PLANT OF J. ELLWOOD LEE CO., CONSHOHOCKEN, PA.

Tire and Rubber Co., capitalized at \$2,000,000, which will take over the entire business. Mr. Lee will be president of the new company and retains a majority of its stock. The other officers are, J. W. Johnson, of New Brunswick, New Jersey, vice-president; A. A. Garthwaite, treasurer; Samuel Wright, secretary, and M. O'B. Hallowell, assistant secretary. The company propose to sell about \$400,000 worth of 7 per cent. preferred stock, chiefly to install additional machinery for the manufacture of the "Jelco" puncture proof tires and tubes for which they own the patents. They will also produce a full line of druggists' rubber sundries. The main plant of the company, of which we give an illustration, is modern and well equipped, with the best railroad facilities.

The New Firestone Plant

THE Firestone Tire and Rubber Co., of Akron, Ohio, in 1909 purchased 28 acres of land lying west of South Main street south of the Erie, C. A. & C. and B. & O. tracks and north of the Belt Line tracks. On this site they have constructed a main building 265 ft. x 360 ft., five stories high, composed of four parts and a power plant, and three auxiliary buildings, one used for a water softening plant, one for a cement house, and the other for a pumping station, and a large boiler and engine rooms, and an independent water supply system, and commodious rooms for office quarters which they expect to occupy May 1.

The main building is of steel construction with reinforced concrete. The first and second floors cover the entire ground floor space, of 265 ft. x 360 ft. The remaining stories run up 60 ft. x 265 ft., with a light court of 40 ft. between each, connected by passageways 40 ft. wide. The stair wells and elevator

water stations through a 12-ft. square passageway to the basement of the main building. This entire plant has been designed and constructed with a view of increasing its capacity at least four times when required. The company has installed an entire waterworks system of its own. Water pipes 30 ins. in diameter have been laid from a point about 250 yds. from the south end of Summit Lake, a distance of 4,000 ft., to the company's new building. The crib extends into the lake about 75 ft. from the shore, and at the lake end there is one active and one spare centrifugal motor driven pump with a capacity of 11½ million gallons every 24 hours. These De Laval pumps are driven by Allis-Chalmers motors. This water plant is complete in itself and furnishes water exclusively to the Firestone company for washing, condensing and general manufacturing purposes.

Firestone rims are manufactured in a building constructed for



THE NEW FIRESTONE PLANT.

shafts are all of the latest fireproof construction. There are sufficient inside stairways to avoid outside fire escapes. Almost three-fourths of the outside surface is glass, giving all the light possible in any construction. An automatic sprinkler system is installed throughout the building. The top floors of two buildings will be occupied by the main general offices. One-half of one of the floors of the second building will be used for restaurant and rest purposes. The remainder of the building will be used exclusively for the manufacture of solid and pneumatic tires.

The machinery is modern and up to date, including a number of machines specially designed by and for the Firestone company. The machinery is specially guarded with automatic stopping and safety devices. The three auxiliary buildings are 20 ft. x 30 ft., 30 ft. x 50 ft., and 32 ft. x 55 ft. The power plant is equipped with five 600 h. p. Sterling water tube boilers designed for 200 lb. working pressure. They are equipped with Taylor automatic stokers. The coal handling machinery consists of a Gantry crane of 50 tons per hour capacity, which elevates the coal from storage or cars to bunkers, the coal being handled by gravity from the bunkers to the stokers, and the ashes from the stokers by gravity to small cars in the basement. The prime movers in the engine room are composed of 1-800 and 1-1,600 k. w. Allis-Chalmers turbo generators. Boilers and engines are parallel with each other with a view of further extension. The wires, and water and steam pipes run from the power and

that purpose located near the old plant. This factory is not able to meet the present demands and many are being manufactured in Detroit. The entire 3½ acres of floor space of the old plant will be given over to the manufacture of rims as soon as the new plant is in operation.

THE NATIONAL ONE CENT LETTER POSTAGE Association, organized for the purpose of securing the reduction of the present two-cent rate on letters in the United States to one cent, is sending out a circular letter describing its proposed plan of action and inviting the co-operation of the press and business men in its work. The association, of which Charles William Burrows is president, and George T. McIntosh is secretary-treasurer, has its headquarters at 506 Chamber of Commerce, Cleveland, Ohio, numbers among its members many of the leading business men in the country, and proposes to prosecute an active campaign at Washington as soon as a bill providing for the lowering of the rate on first rate postage can be introduced in Congress.

"AMAX" IS TO BE THE TRADE MARK, and perhaps the name of a brand of mineral rubber produced by the American Wax Co. (Boston, Massachusetts.) They claim for their product a purity test of 99-84/100. They also inform us that manufacturers of rubber footwear, insulated wire and mold work get most satisfactory results from its use.

News of the American Rubber Trade.

GENERAL RUBBER CO.

AT the annual meeting of this company, held May 2, the following Board of Directors was chosen: Walter S. Ballou, William F. Bass, E. C. Benedict, Anthony N. Brady, Samuel P. Colt, Edgar B. Davis, James Deshler, James R. Ford, Ernest Hopkinson, H. Stuart Hotchkiss, Lester Leland, D. Lorne McGibbon, Homer E. Sawyer and Elisha S. Williams. The following officers were elected for the current year:

President—LESTER LELAND.
Vice President—WILLIAM F. BASS,
Vice President—EDGAR B. DAVIS.
Treasurer—W. H. BLACKWELL.
Assistant Treasurer—JOHN D. CARBERRY.
Secretary—SAMUEL NORRIS.
Assistant Secretary—JOHN D. CARBERRY.

BOSTON WOVEN HOSE AND RUBBER CO. DIVIDEND.

THE directors of the above company have declared a semi-annual dividend of three dollars per share on the preferred stock and a quarterly dividend of two dollars and a half per share on the common stock, both payable June 15 to stockholders of record June 5, 1911.

CONSOLIDATED RUBBER CO. ELECTION.

AT a recent meeting of the stockholders of the Consolidated Rubber Tire Co., New York, the retiring board of directors were all re-elected, with the exception of Emerson McMillin, who was succeeded by James A. Todd. The board, as at present constituted, consists of Isaac L. Rice, Stephen Peabody, Van H. Cartmell, P. J. Goodhart, Austin M. Poole, Gustavus Maas, Frederick A. Seaman and James A. Todd.

A GOOD YEAR FOR THE GENERAL ELECTRIC COMPANY.

THE nineteenth annual report of the above company recently received and covering the year ending December 31, 1910, shows a notably satisfactory condition of the company's affairs and an excellent year's business. The sales billed, amounting to \$71,478,538, were the largest for any year in the company's history, while the total orders received—\$71,182,391—exceeded those for the year ending January 31, 1907, the largest previous year, by 17.7 per cent. The total number of orders and contracts, 338,272, exceeded all previous records. The profits for the year ending December 31, 1910 amounted to \$10,855,692.13, of which \$5,214,568 was distributed in cash dividends, at the rate of eight per cent. per annum, paid quarterly. The report comments on the growth of the company's business in all its most important phases, notably the increase in the company's foreign trade and a promising outlook for the future is predicted, as the value and advantages of electric light and power are more widely recognized.

MONATIQUE RUBBER WORKS CO.

THIS company informs us that their special grades of "naturized rubbers," which are high grade reclaimed stocks, have been so promptly taken up by the rubber manufacturing trade that they have been running their factory night and day. The factory, by the way, is erected on the historic site of the Paul Revere Brass Foundry at South Braintree, Massachusetts, on the main line of the New York, New Haven and Hartford Railroad.

HARTFORD TIRE WORKERS' DANCE.

THE Hartford Rubber Works Mutual Benefit Association held its annual entertainment and ball on May 13. Socially and as a benefit undertaking it was a highly successful affair, as may be gathered from that fact that upwards of 2,000 tickets were disposed of.

THE ANCIENT HOUSE OF HEILBURT.

THE report that Mr. F. Poel is to retire from the firm of Poel & Arnold in which the great European banking and rubber importing house of Heilburt, Symons & Co. are special partners, leads one to review the genealogy of both of the companies. The parent concern dates back to 1838 when it was established in London as Heilburt & Ruben. In 1849, one year after Ruben's death, the firm of Heilburt, Symons & Co., was formed. From then on the history is one of gradual but notable expansion. In 1856, a branch was established in Paris, one in Hamburg in 1861, New York in 1864, Pará in 1868, Liverpool in 1870, Manáos in 1885, Antwerp in 1900, Bordeaux in 1907.

The New York connection began in 1864 with E. Marcus, who retired in 1878. He was followed by C. Loewenthal and in 1881 by C. Loewenthal & Co., general partners, Heilburt, Symons & Co. being special partners, the former firm consisting of C. Loewenthal and F. H. Kalkman. Kalkman retired in 1885 and Loewenthal in 1891. In 1892 the firm of Reimers & Meyer (H. Reimers and A. Meyer) became general partners. Meyer retired in 1899 and the firm became Reimers & Co. Mr. Reimers retired in 1902. The firm of Poel & Arnold was then formed consisting of F. Poel and C. H. Arnold as general partners January 1, 1903. In 1906 August Fleischman was admitted to partnership and he retired in 1908. In 1887 the New York firm established a house in Boston and in 1903 one in Akron, Ohio.

The policy of the parent company has been to arrange that retiring partners sever their connection on the last day of the year and the firm succeeding comes into existence the day following, January 1. It is therefore probable that Mr. Poel, granting that the rumor of his retirement be not premature, will remain in his company for the balance of this year.

ESTABLISHED NINETY YEARS AGO.

WHILE the name of "Denis Crouan Fils" may be perhaps better known than "De Lagotellerie," it would, perhaps, be of interest to the trade to know that this gentleman is a son-in-law of the founder of the firm, taking over the firm after the death of Ferdinand Crouan some five years ago. Mr. de Lagotellerie is ranked amongst the highest in business and social circles throughout France and South America, and the great interest he has shown in the recent opening of a New York branch augurs well for its future. The large interests controlled by this gentleman throughout the rubber producing countries of the world make him perhaps a leading factor.

The New York managers are X. W. Obalski and E. C. Sweeney, Jr. Mr. Obalski spent the first years of his life in the rubber districts of Brazil, going from there to Nantes, that being the head office of the old firm of "Denis Crouan Fils," which his father was one of the directors. He was affiliated with the United States and Canadian markets for a period of five or six years, and became well acquainted with the most important firms there. Mr. Sweeney, after completing his education in the French Colonial College at St. Pierre Miquelon, and spending some time throughout the commercial sections of Canada, came to the United States in 1902. After joining the International Banking Corporation of this city, he rose to the position of acting auditor and teller for the above concern. This institution, with its many branches, was a good source of information as to the financing and standing of commercial houses throughout the world. In 1908 Mr. Sweeney started on his own account in the import and export business with offices at No. 64 Wall street, giving up his interests to take up the management of the newly-established branch.

MR. DAVOL'S WILDACRES FARM.

OUT at Quidnessett, North Kingston, Rhode Island, is a stretch of country that is a veritable wilderness. It is very beautiful withal and furnishes excellent fishing and shooting. Here Charles J. Davol, president of the Davol Rubber Co.



CHARLES J. DAVOL AT "WILDACRES."

(Providence, Rhode Island), has purchased a large acreage and established a hot weather retreat for himself which he calls "Wildacres." A good judge of dogs; he has also installed an expert in breeding them and Wildacres Farm Kennels with their pure strain Pointers, Setters and Beagles are already well known. The illustration shows Mr. Davol and a companion on a hunting trip at Wildacres.

NEW INCORPORATIONS.

AMERICAN RUBBERFELT Co., May 11, 1911, under the laws of Delaware; authorized capital, \$125,000. Incorporators: D. B. Baker, E. F. Houze and Fred A. Rathe—all of Chicago, Ill.

Auerbach Bros. Co., May 2, 1911, under the laws of Illinois; authorized capital, \$10,000. Incorporators: Paul M. O'Donnell, Sidney Auerbach, and M. D. Auerbach. Location of principal office, No. 3101-3111 Market square, Chicago, Ill. The company has been incorporated to buy, sell and deal in rubber scrap, metal junk, etc.

Detroit Cushion Tire Co., April 11, 1911, under the laws of Michigan; authorized capital, \$100,000. Incorporators: Augustus W. Shank, William W. Tackabury, Augustus P. Mott and Elos H. Reynolds, all of Detroit, Michigan. To manufacture and sell vehicle tires and accessories.

Federal Rubber Manufacturing Company, May 12, 1911, under the laws of Wisconsin; authorized capital, \$1,000,000. Incorporators: John W. McMillan, J. G. Hardgrove and Garfield S. Canright.

Howe Baumann Balloon Co., May 16, 1911, under the laws of New Jersey; authorized capital, \$50,000. Incorporators: John Tenney, Jr., Plainfield, N. J.; Samuel Lauterbach, No. 2626 Broadway, New York City; Julius Lederer, No. 273 Dwight

street, New Haven, Conn., and Harold A. Dodge, No. 107 Clinton avenue, Newark, N. J.

Koochook Rubber Co., March 29, 1911, under the laws of Missouri; authorized capital, \$5,000. Incorporators: F. L. Huber (president and general manager), H. C. Parker and Wilfred Hearn—all of St. Louis, Mo. The company has been incorporated to buy and sell all kinds of mechanical rubber goods, automobile and electrical supplies and appliances.

Perfection Auto Tire Co., April 11, 1911, under the laws of Wisconsin; authorized capital, \$50,000. Incorporators: Frank A. Cooper, H. C. E. Quentin and W. S. Hopkins. To manufacture chemicals for filling and repairing rubber tires. Location of principal office, Milwaukee, Wisconsin.

Pines Manufacturing Co., March 24, 1911, under the laws of New York; authorized capital, \$75,000. Incorporators: Joseph Pines (president and secretary), No. 1221 Forty-second street; David Pines (treasurer), No. 364 Hopkinson avenue—both of Brooklyn, New York, and M. W. Pines, No. 2860 Burnet street, Brunswick, New Jersey. To manufacture rubber auto garments, etc. Location of principal office, New York.

Purity Supply Company, incorporated May 4, 1911, under the laws of New York; authorized capital, \$15,000. Incorporators: Frederick C. Olson, Frank B. Worden, and Benjamin P. Toles—all of Jamestown, New York. To manufacture toilet articles, syringes, rubber goods, etc. Location of principal office, Jamestown, New York.

Reality Rubber Co., March 10, 1910, under the laws of Ohio; authorized capital, \$25,000. Incorporators: E. G. Richert, E. G. Willson, S. Bert Hankins, Frank R. Hallwager and Louis A. Koons. To manufacture, purchase and deal in rubber goods and supplies.

Roberts Rubber Manufacturing Co., May 1, 1911, under the laws of New York; authorized capital, \$250,000. Incorporators: Frederick T. Roberts, No. 210 West Seventy-eighth street; Frederick L. Guggenheimer, No. 346 Broadway, and Frederick Weiner, No. 346 Broadway—all of New York City. Location of principal office, New York city.

Universal Fiber Board Company, April 24, 1911, under the laws of New York; authorized capital, \$200,000. Incorporators: John A. Lewis, John R. Taylor and Charles L. Tuttle—all of Rochester, New York. To manufacture all kinds of roofing, including rubber roofing. Location of principal office, Rochester, New York.

Vulcan Proofing Co., May 3, 1911, under the laws of New York; authorized capital, \$100,000. Incorporators: George Kenyon (secretary and treasurer), William A. Walker (president), and Harold L. Kenyon—all of No. 585 Dean street, Brooklyn, New York. This company is established for rubberizing single and double texture fabrics for waterproofs, clothing, shoes and automobile purposes. Location of principal office, Brooklyn, New York.

PERSONAL MENTION.

THE Hon. William M. Ivins is said to have been retained to assist the District Attorney in New York in prosecuting the case of the Carnegie Trust Co.

Robert B. Baird, vice-president of the Rubber Trading Co., and his son, Robert L. Baird, associated with the same company, recently took their thirty-second degree in Masonry. Both joined Kismet Temple, Mystic Shrine, Brooklyn, April 29, 1911. Robert B. Baird became a Knight Templar (York rite) in 1906, and Robert L. Baird, who is probably the youngest Mason, possessing all the degrees, in April, 1911.

Ira J. Cooper, manager of the Cincinnati, Ohio, branch of Morgan & Wright, is slated to become manager of the Cincinnati branch of the United States Tire Co., which will open large warerooms and offices July first at 120 East Eighth avenue.

THE RUBBER CLUB OF AMERICA.

The following are announced as the committees for The Rubber Club of America for 1911-12:

Nominating.—Hon. L. DeWart Apsley, chairman; Homer E. Sawyer, Charles J. Bailey, William H. Gleason; Elston E. Wadbrook, secretary.
Dinner.—Charles A. Coe, chairman; Geo. H. Mayo, Robert L. Rice, William E. Barker, Joseph W. Work.
Sports.—R. L. Chipman, chairman; R. E. Paine, E. L. Phipps, William J. Kelly, Wallace G. Page.
Entertainment.—H. K. Fuller, chairman; Charles J. Bailey, James H. Learned, George E. B. Putnam, W. L. Proctor.
Resolutions.—Henry C. Pearson, chairman; Elston E. Wadbrook, Geo. P. Whitmore.
Auditing.—William H. Gleason, chairman; J. Everett Stone.

ATTACHED FOR \$207,000.

The Diamond Rubber Co. (Akron, Ohio), having a claim against the Mexican Crude Rubber Co. (Detroit, Michigan), assigned it to Thomas S. Lindsay, of that city, who attached for \$207,654, the claim for an alleged violation of contracts in delivering guayule rubber. The contract which dated back to March, 1909, was for 750 tons of guayule, at 32 cents a pound. Up to December 22, 1910, there were delivered 469 tons, leaving a balance due of 281 tons. At that time, however, the price of guayule had advanced to 65 cents a pound, and the Diamond company, through Mr. Lindsay, sued for the difference of 33 cents a pound on the undelivered portion or \$207,654.

A NEW RUBBER COMPANY FOR ERIE, PA.

THE VULCAN RUBBER CO. has been organized at Erie, Pa., to manufacture a general line of rubber goods. The company will have \$100,000 capital stock, and the incorporators are Mayor M. Liebel, Jr., Eugene Liebel, Oil City; William Kaul, Frank Kaul and Frank Obenkirch, St. Marys, and Bernard Cochran, Erie. Property has been purchased, about six acres in extent, on which there are a number of substantial brick, iron and concrete buildings, that will be remodelled for the company's business. The necessary machinery has been ordered and the plant is expected to be in operation within two months.

PERSONAL MENTION.

Just as we go to press word comes that the American yacht *Virginia*, with Commodore E. C. Benedict of the executive committee of the United States Rubber Co., and a party of friends, went ashore off the coast of Pinar del Rio, Cuba. All on board are reported safe and it is expected that the yacht will be gotten off at high tide. The party were returning to New York from a trip up the Amazon.

Albert T. Holt has resigned as superintendent of the Whittall Tatum Co., at Keyport, New Jersey.

R. Bardewyck, representing in the United States Lehman & Voss, Hamburg, Germany, manufacturers of chemicals, etc., for the rubber trade, left for Europe on May 25, per steamer *Kaiserin Auguste Victoria*. Having been in the United States since September last, he reports business good and is making the trip to the other side for the purpose of consulting with his principals, mainly in regard to new methods of using their productions in rubber manufacturing. He proposes also to visit the rubber exhibition, which is one of the objects of his trip, but expects to return as soon as possible.

Robert L. Baird and Collier W. Baird have become associated with the Rubber Trading Co. in the capacity of salesmen, and are covering their respective territories with considerable success.

Frank H. Martin, for several years manager of the Chicago branch of the Firestone Tire and Rubber Co., has been made special representative, with headquarters at the factory. A. W. Moore, formerly on the selling force of the Chicago branch, has been placed in charge at Chicago.

John Nelson Kirk, Jr., of the Thermoid Rubber Co., Trenton, N. J., was married May 11, at All Angels Church, New York, to Miss Dorothy E. Rogers, daughter of Walter Chapman Rogers. The wedding tour included a trip north and west.

TRADE NEWS NOTES.

Announcement is made of the dissolution of the limited partnership heretofore existing between H. A. Astlett and Luis F. Morey, doing business as crude rubber importers as H. A. Astlett. Under the title of H. A. Astlett & Co., a limited partnership has been formed by H. A. Astlett, Edmund R. Hawkins, Thomas H. Ivory and J. C. Richard Merz, Luis F. Morey, special partner. The offices remain at 117 Pearl street, New York.

A contract has recently been closed under which 500 taxicabs in New York City, owned by the Mason-Seaman Transportation Co. (more generally known as the New York Taxicab Co.) will be equipped with Fisk tires and removable rims, manufactured by the Fisk Rubber Co. (Chicopee Falls, Massachusetts). Of all the taxicabs in the United States, 75 per cent. now have the Fisk rim and tire equipment.

A factory for the manufacture of rubber tiling is being put up at Kenilworth, N. J. It is understood that George Bradshaw, connected with the Eastern Reclaimed Rubber Co. (New York, is at the head of the concern.

Quite a number of prominent rubber manufacturers are at present in Europe. Among them are the Hon. L. D. Apsley, Frederic C. Hood and H. E. Raymond.

The Metal Lock Tile Co. announce the removal of their executive offices to their factory, and their address is now, Metal Lock Tile Co., Trenton, New Jersey.

Stoughton Rubber Co. are erecting, at Stoughton, Massachusetts, a reinforced concrete building, 150 x 45 feet and three stories high, on the Wilson system of mill construction. It will be divided by a fire wall, and one portion will be used for storage purposes and the balance for the manufacturer of rubber clothing.

The factory of the Joseph Banigan Rubber Co., at Olneyville, Rhode Island, purchased some time since by the Revere Rubber Co., has been started up as a separate unit devoted to the manufacture of automobile tires, the "Continentials." The old works which were large have been substantially increased by the erection of new buildings and re-arrangement of the old ones; the present plant is a complete and up-to-date tire factory.

A plastic for general compounding particularly in black goods is known as "Byerlyte." It is a pure hydrocarbon, a petroleum product, in the form of an artificial asphalt, which is said to have all the advantages of natural asphalt without its impurities and its variability. One of its strongest points is claimed to be that it can be delivered in the exact consistency desired, and hence does not need to be fluxed with the volatile ingredients that cause some asphalts to disintegrate. The makers claim for it that in connection with crude rubber it adds to the compounding quality quite considerable. It is said also to increase the tensile strength; is not affected by moisture; has no ingredients to volatilize and that it never oxidizes. It is claimed also that used with strong smelling rubbers, such as African, or in connection with some classes of reclaimed, it acts as a deodorizer.

The Crude Rubber Washing Co., Limited, with headquarters at No. 17 Mincing lane, London, E. C., England, have recently acquired the entire rubber washing department of the British Murac Syndicate, Limited, and are erecting at Edmonton new works having a capacity of 10 tons of washed and standardized rubber day. It has been claimed that by this process the large quantities of dirt, and other impurities which previously characterized many grades of rubber shipped to the continental and London markets is eliminated, and that all rubbers branded "C. R. W." are guaranteed absolutely pure virgin india-rubber, and sold under a guarantee of a certain percentage of shrinkage. This product is handled in the United States by the Wallace L. Gough Co., of No. 108 Water street, New York.

William H. Scheel, New York, manufacturers of "Black Hypo" for non-blooming black stocks, are introducing another grade of this product, to be known as Black Hypo, Special, as against the standard article, Black Hypo, Extra, and which they will supply at a much lower price than the "Extra."

SUMMARY OF MOVEMENT OF GERMAN FOREIGN TRADE IN CRUDE AND MANUFACTURED RUBBER.

	IMPORTS.				EXPORTS.			
	Year 1909.	Year 1910.	First quarter 1910.	First quarter 1911.	Year 1909.	Year 1910.	First quarter 1910.	First quarter 1911.
CRUDE MATERIALS (Analyzed in Tables A and B).								
Thousands of dollars	38,445	47,000	15,909	18,309	7,926	12,710	3,250	2,748
MANUFACTURES.								
Of soft rubber (analyzed in Table C).....	4,859	6,029	1,561	1,740	8,130	10,374	2,376	2,737
Of hard rubber (analyzed in Table D).....	92	108	37	44	2,577	2,749	660	723
Telegraph cables	319	248	93	58	11,751	11,846	3,321	3,479
Thousands of dollars.....	5,270	6,385	1,691	1,842	22,458	24,969	6,357	6,939

GERMAN IMPORTS OF CRUDE RUBBER, GUTTA-PERCHA AND BALATA ANALYZED.

	Year 1909.		Year 1910.		First quarter 1910.		First quarter 1911.	
	Pounds.	Thousands of dollars.	Pounds.	Thousands of dollars.	Pounds.	Thousands of dollars.	Pounds.	Thousands of dollars.
India-rubber, crude or purified.....	34,210,880	33,694	41,151,660	40,637	10,289,840	13,891	12,331,440	16,648
Gutta-percha, crude or purified.....	13,057,660	3,061	19,127,680	4,477	2,905,980	1,469	2,204,400	1,115
Balata, crude or purified.....	1,602,040	728	1,701,040	773	469,480	315	364,760	244
India-rubber, gutta-percha and balata waste.....	9,261,780	758	11,312,400	925	2,053,480	187	2,703,800	246
Oil rubber and other rubber substitutes.....	1,790,360	204	1,639,420	188	415,360	47	495,000	56
Thousands of dollars		38,445		47,000		15,909		18,309

GERMAN EXPORTS OF CRUDE RUBBER, GUTTA-PERCHA AND BALATA.

	Year 1909.		Year 1910.		First quarter 1910.		First quarter 1911.	
	Pounds.	Thousands of dollars.	Pounds.	Thousands of dollars.	Pounds.	Thousands of dollars.	Pounds.	Thousands of dollars.
India-rubber, crude or purified.....	8,945,640	6,918	10,846,440	11,500	3,332,340	2,975	2,671,920	2,510
Gutta-percha, crude or purified.....	555,280	193	617,760	192	253,220	64	98,560	57
Balata, crude or purified.....	408,760	193	471,680	315	141,900	73	94,820	63
India-rubber, gutta-percha and balata waste.....	9,658,880	577	10,362,660	669	2,262,700	132	1,254,880	110
Oil rubber and other rubber substitutes.....	412,940	45	276,320	34	58,520	6	97,900	8
Thousands of dollars		7,926		12,710		3,250		2,748

IMPORTS AND EXPORTS OF SOFT RUBBER MANUFACTURES

	IMPORTS.				EXPORTS.			
	Year 1909.	Year 1910.	First quarter 1910.	First quarter 1911.	Year 1909.	Year 1910.	First quarter 1910.	First quarter 1911.
Rubber solution	5	8	1	2	116	197	38	42
Soft rubber paste; rubber strips unworked; gutta-percha tissue	720	1,613	414	508	302	835	160	256
Cut sheet	90	78	21	23	129	64	16	6
Rubber thread	983	718	277	286	145	190	49	65
Rubber thread with yarns.....	60	105	38	21	40	30	10	5
Inner tubes	140	284	57	115	...	...	...	...
Rubber hose	79	56	24	18	1,487	1,646	358	395
Rubber belting	79	73	15	27	672	765	166	194
Rubber tarpaulins .....	...	...	...	...	3	5	1	5
Rubber shoes	651	714	17	6	144	111	26	14
Solid tires	50	64	17	27	...	...	...	...
Pneumatic tires	578	720	184	243	...	...	...	...
Sheet packing	429	517	168	137	2,929	3,808	818	1,098
Piston packing	30	43	10	17	528	594	140	122
Silk fabrics with rubber thread.....	114	103	29	30	...	...	...	...
Other rubber fabrics.....	582	696	181	176	...	...	...	...
Rubber fabrics .....	...	...	47	44	1,593	2,062	584	529
Printers' blankets	3	7	3	3	15	24	3	2
Card clothing	256	230	58	57	27	48	6	3
Thousands of dollars	4,859	6,029	1,561	1,740	8,130	10,374	2,376	2,737

[German exports of inner tubes, solid and pneumatic tires, are included in the general returns for motor and cycle parts, and therefore cannot be separately shown.]

IMPORTS AND EXPORTS OF HARD RUBBER MANUFACTURES.

	IMPORTS.				EXPORTS.			
	Year 1909.	Year 1910.	First quarter 1910.	First quarter 1911.	Year 1909.	Year 1910.	First quarter 1910.	First quarter 1911.
Hard rubber compound, not vulcanized.....	...	...	...	...	2	3	1	3
Dental gum	15	14	5	5	52	68	13	22
Hard rubber, sheets and rods.....	9	21	4	5	333	370	75	127
Hard rubber pipe stems.....	...	2	...	1	38	42	9	9
Other hard rubber goods.....	68	71	28	33	1,870	2,060	504	507
Unclassified .....	...	...	...	...	282	206	58	36
Thousands of dollars.....	92	108	37	44	2,577	2,749	660	723

Review of the Crude Rubber Market.

THE market during the past month has been dull and featureless, with the demand sluggish and a tendency towards lower quotations, in spite of the depressed figures that at present prevail. Although the price of up-river fine dropped from \$1.30 at the beginning to \$1.01 at the close of the month, the low figure did not encourage buying by consumers, who devoted their attention chiefly to the lower grades, the business done being confined principally to speculative transactions, based on the low prices and the downward movement, which shows no immediate signs of limitation.

NEW YORK QUOTATIONS.

FOLLOWING are the quotations at New York for Pará grades, one year ago, one month ago, and May 31—the current date:

PARA.	June 1, '10.	May 1, '11.	May 31, '11.
Islands, fine, new.....	225@226	118@120	96@ 97
Islands, fine, old.....	none here	120@121	98@100
Upriver, fine, new.....	240@241	126@127	99@100
Upriver, fine, old.....	242@243	130@131	105@106
Islands, coarse, new.....	95@ 96	61@ 62	58@ 59
Islands, coarse, old.....	none here	none here	none here
Upriver, coarse, new.....	160@161	89@ 90	82@ 83
Upriver, coarse, old.....	none here	92@ 93	84@ 85
Cancho (Peruvian), ball.....	155@156	94@ 95	84@ 85
Cameta.....	109@110	75@ 76	66@ 67
Caucho (Peruvian), sheet.....	none here	none here	66@ 67

PLANTATION PARA.

Fine smoked sheet.....	229@230	140@141	none here
Fine pale crepe.....	@	140@141	114@115
Fine sheets and biscuits.....	@	130@131	none here

CENTRALS.

Esmeralda, sausage.....	133@134	88@ 89	78@ 79
Guayaquil, strip.....	106@107	none here	none here
Nicaragua, scrap.....	128@129	87@ 88	77@ 78
Panama.....	none here	none here	none here
Mexican, scrap.....	128@129	86@ 87	77@ 78
Mexican, slab.....	none here	none here	none here
Mangaberia, sheet.....	none here	none here	none here
Guayule.....	95@100	58@ 59	48@ 49
Balata, sheet.....	@	83@ 84	none here
Balata, block.....	@	56@ 57	none here

AFRICAN.

Lopori ball, prime.....	none here	115@118	95@ 96
Lopori, strip, prime.....	none here	none here	none here
Aruwimi.....	none here	112@113	94@ 95
Upper Congo, ball, red.....	190@191	109@110	95@ 96
Ikelemba.....	none here	none here	none here
Sierra Leone, 1st quality.....	165@168	100@102	85@ 86
Massai, red.....	165@168	100@102	85@ 86
Soudan niggers.....	none here	none here	none here
Cameroon, ball.....	110@111	76@ 77	56@ 57
Benguela.....	none here	70@ 71	65@ 66
Madagascar, pinky.....	none here	87@ 88	77@ 78
Accra flake.....	none here	38@ 39	27@ 28

EAST INDIAN.

Assam.....	none here	none here	83@ 84
Pontianak.....	8½@9	6¼@6½	6@6½
Borneo.....	none here	none here	none here

Late Pará cables quote:

Per Kilo.	Latest Manáos advices:	Per Kilo.
Islands, fine.....	45200	58800
Islands, coarse.....	28100	38600
Upriver, fine.....	58200	16¼
Upriver, coarse.....	28900	
Exchange.....	16 3-16	

New York.

IN regard to the financial situation, Albert B. Beers (broker in crude rubber and commercial paper, No. 68 William street, New York), advises as follows: "There is practically no change in the rubber market since the report a month ago, the good demand for commercial paper having continued through May, both from city and out-of-town banks at 4 @ 4½ per cent. for the best rubber names and 5 @ 5½ per cent. for those not so well known."

Para.

R. O. AHLERS & Co. report [May 1]:

The market here keeps quiet, with no business of any importance being done, except in Islands rubber and caucho. For Upriver, fine, all holders stick to about 58. 11d. (\$1.44), and will not sell at less. On the other hand, the financial difficulties of holders of rubber appear now more clearly. A general meeting of all commercial houses at the Associação Commercial was discussing the last week's freer extension of drafts on aviador houses so as to allow these houses to keep their rubber in the

expectation of better prices, and a commission waited again upon the governor of the state with the request to wire to the federal government for help, i. e., for more money to be advanced through the Banco do Brazil. This bank has declared that it will keep the stock of J. Marques, i. e., not sell it at present. It does not seem very likely though that the federal government should spend more money on the valorization scheme, and the position here clearly becomes more unbearable every day.

Statistics of Para Rubber (Excluding Caucho).

	NEW YORK.			PARA.			ENGLAND.		
	Fine and	Medium.	Coarse.	1911.	1910.	1909.	1911.	1910.	1909.
Stocks, March 31.....tons	318	78 =	396	280	451				
Arrivals, April.....	373	290 =	663	536	1,405				
Aggregating.....	691	368 =	1,059	816	1,856				
Deliveries, April.....	251	247 =	498	673	543				
Stocks, April 30.....	440	121 =	561	143	1,313				
Arrivals, April.....	2,520	2,210	2,350	1,203	2,408	1,440			
Stocks, March 31.....tons	3,630	835	1,561	1,865	540	330			
Aggregating.....	6,150	3,045	3,911	3,068	2,948	1,770			
Deliveries, April.....	1,990	2,785	2,976	1,598	1,848	1,050			
Stocks, April 30.....	4,160	260	935	1,470	1,100	720			
World's visible supply, April 30.....tons				7,069	3,058	3,828			
Pará receipts, July 1 to April 30.....				27,190	29,230	27,670			
Pará receipts of caucho, same dates.....				5,930	6,530	6,690			
Afloat from Pará to United States, April 30.....				283	125	477			
Afloat from Pará to Europe, April 30....				595	1,430	1,153			

Rubber Receipts at Manaos.

DURING March and nine months of the crop season, for three years (courtesy of Messrs. Scholz & Co.):

	MARCH.			JULY-MARCH.		
From—	1911.	1910.	1909.	1910-11.	1909-10.	1908-09.
Rio Purús-Acre.....tons	1,216	1,616	533	9,061	9,105	7,866
Rio Madeira.....	224	348	309	2,696	2,956	2,794
Rio Juruá.....	710	490	578	3,398	3,622	3,686
Rio Javary-Iquitos.....	108	64	162	2,047	2,533	2,318
Rio Solimões.....	119	124	77	1,135	1,097	945
Rio Negro.....	127	95	93	368	644	483
Total.....	2,504	2,737	1,752	18,705	19,957	18,092
Caucho.....	735	1,228	967	3,642	5,187	5,039
Total.....	3,239	3,965	2,719	22,347	25,144	23,131
Manáos.....	2,418	2,475	1,940	15,506	18,284	17,042
Pará.....	821	1,490	779	6,841	6,860	6,089
Total.....	3,239	3,965	2,719	22,347	25,144	23,131

IMPORTS FROM PARA AT NEW YORK.

The Figures Indicate Weight in Pounds.

APRIL 28.—By the steamer Tocantins, from Pará:					
	Fine.	Medium.	Coarse.	Caucho.	Total.
Laurence Johnson & Co....	21,600			12,300	33,900
Henderson & Korn.....				13,000	13,000
Poel & Arnold.....	11,900			10,600	22,500
Total.....				33,500	35,900=69,400
MAY 5.—By the steamer Frances, from Manáos and Pará:					
A. T. Morse & Co.....	195,500	26,000	30,500	30,200	382,200
Poel & Arnold.....	21,900	44,000	154,900	149,200	370,000
New York Commercial Co..	28,100	6,800	54,900	60,900	150,700
G. Amsinck & Co.....	30,900	3,800	2,100	3,000	39,800
De Lagotellerie & Co.....	12,500	1,800	17,100		31,400
Henderson & Korn.....	16,800	3,300	10,800		30,900
Laurence Johnson & Co..	3,600		11,900		15,500
H. A. Astlett.....			7,900		7,900
General Rubber Co.....				2,200	2,200
Total.....	309,300	85,700	290,100	245,500	930,600
MAY 15.—By the steamer Basil, from Manáos and Pará:					
Poel & Arnold.....	108,300	14,500	122,700	46,600	292,100
A. T. Morse & Co.....	43,900	8,800	17,100	104,600	174,400
New York Commercial Co..	2,500	400	21,100	33,000	57,000
De Lagotellerie & Co.....	10,700	4,300	30,400		45,400
Hagemeyer & Brunn.....	3,600		4,000		7,600
Total.....	169,000	28,000	195,300	184,200	576,500
MAY 20.—By the steamer Rio de Janeiro, from Pará:					
Poel & Arnold.....	1,500		71,700		73,200
New York Commercial Co..	21,200	2,000	10,700	8,000	41,900
Total.....	22,700	2,000	82,400	8,000	115,100

PARA RUBBER VIA EUROPE.

	Pounds.
APRIL 24.—By the <i>Cedric</i> =Liverpool:	
Wallace L. Gough (Fine).....	7,000
APRIL 27.—By the <i>Clyde</i> =Mollendo:	
General Rubber Co. (Fine).....	4,000
APRIL 28.—By the <i>Mauretania</i> =Liverpool:	
Poel & Arnold (Cauchó).....	22,500
MAY 1.—By the <i>Bulgaria</i> =Hamburg:	
Rubber Trading Co. (Fine).....	9,000
MAY 3.—By the <i>Finland</i> =Antwerp:	
Muller, Schall & Co. (Fine).....	11,500
MAY 3.—By the <i>Caronia</i> =Liverpool:	
Poel & Arnold (Fine).....	35,000
Robinson & Co. (Fine).....	30,000
C. P. dos Santos (Fine).....	11,000
MAY 5.—By the <i>Lusitania</i> =Liverpool:	
Robinson & Co. (Fine).....	13,500
Raw Products Co. (Coarse).....	11,500
Henderson & Korn (Coarse).....	36,000
MAY 8.—By the <i>Celtic</i> =Liverpool:	
Henry A. Gould Co. (Fine).....	2,000
Poel & Arnold (Cauchó).....	13,500
MAY 10.—By the <i>Kronland</i> =Antwerp:	
A. W. Brunn (Fine).....	9,000
MAY 11.—By the <i>Atrato</i> =Mollendo:	
General Rubber Co. (Fine).....	4,500
MAY 11.—By the <i>Adriatic</i> =London:	
New York Commercial Co. (Coarse).....	18,000
MAY 13.—By the <i>Campania</i> =Liverpool:	
Poel & Arnold (Fine).....	20,000
Raw Products Co. (Fine).....	11,000
Henderson & Korn (Fine).....	3,000
A. T. Morse & Co. (Cauchó).....	56,000
MAY 17.—By the <i>Carmania</i> =Liverpool:	
Poel & Arnold (Fine).....	22,500
Poel & Arnold (Coarse).....	47,500
MAY 18.—By the <i>Pennsylvania</i> =Hamburg:	
Raw Products Co. (Coarse).....	10,000
Wallace L. Gough Co. (Fine).....	17,000
MAY 19.—By the <i>Mauretania</i> =Liverpool:	
Poel & Arnold (Fine).....	20,000
Raw Products Co. (Coarse).....	22,500
Poel & Arnold (Cauchó).....	37,000

OTHER NEW YORK ARRIVALS.

CENTRALS.

[*This sign, in connection with imports of Centrals, denotes Guayule rubber.]

	Pounds.
APRIL 22.—By the <i>Momus</i> =New Orleans:	
Eggers & Heinlein.....	4,500
Robinson & Co.....	3,500
G. Amsinck & Co.....	2,000
Manhattan Rubber Mfg. Co.....	1,000
New York Commercial Co.....	1,000
APRIL 24.—By the <i>Byron</i> =Bahia:	
J. H. Rossbach & Bros.....	56,000
APRIL 24.—By the <i>Bayamo</i> =Tampico:	
Ed. Maurer.....	*135,000
New York Commercial Co.....	*100,000
APRIL 26.—By the <i>Prinz Eitel Friedrich</i> =Colon:	
Kunhardt & Co.....	11,500
G. Amsinck & Co.....	7,000
Caballero & Blanco.....	5,500
Del Castillo & Co.....	1,500
Jose Julia & Co.....	1,500
Delima Cortisoz & Co.....	1,500
August A. Lindo & Co.....	1,000
APRIL 26.—By the <i>Croale</i> =New Orleans:	
A. T. Morse & Co.....	10,000
Robinson & Co.....	1,000
APRIL 26.—By the <i>Advance</i> =Colon:	
G. Amsinck & Co.....	11,000
J. Sambrado & Co.....	4,000
Dumarest Bros. & Co.....	4,000
New York Commercial Co.....	3,500
Pablo Calvert & Co.....	3,500
A. Santos & Co.....	2,000
Charles E. Griffin.....	1,500
F. Rosenstern & Co.....	1,000
A. Rosenthal & Sons.....	1,000
APRIL 27.—By the <i>Clyde</i> =Columbia:	
Isaac Brandon & Bros.....	12,500
A. M. Capen's Sons.....	7,000
Roldau & Van Sickle.....	3,000
Langman & Kemp.....	1,500
American Trading Co.....	1,000
J. Sambrado & Co.....	1,000
G. Amsinck & Co.....	1,000
Pablo Calvert & Co.....	1,000
Delima Cortisoz & Co.....	1,000

APRIL 29.—By the <i>Mexico</i> =Vera Cruz:	
E. Nelson Tibbals & Co.....	1,000
International Products Co.....	1,000
Graham, Hinkley & Co.....	1,000
E. Steiger & Co.....	1,000
H. Marquardt & Co.....	1,000
W. L. Wadleigh.....	1,000
APRIL 29.—By the <i>Seguranc</i> =Tampico:	
Ed. Maurer.....	*65,000
New York Commercial Co.....	*34,000
For Hamburg.....	*34,000
MAY 1.—By the <i>Bulgaria</i> =Hamburg:	
Raw Products Co.....	*22,500
MAY 1.—By the <i>Orange Prince</i> =Bahia:	
J. H. Rossbach & Bros.....	25,000
MAY 2.—By the <i>Albion</i> =Columbia:	
Caballero & Blanco.....	3,500
G. Amsinck & Co.....	1,500
Delima Cortisoz & Co.....	1,500
Pablo Calvert & Co.....	1,000
MAY 2.—By the <i>Panama</i> =Colon:	
G. Amsinck & Co.....	7,000
A. T. Morse & Co.....	3,000
Mecke & Co.....	1,000
Wessels Kulenkampff & Co.....	1,000
MAY 3.—By the <i>Prinz August Wilhelm</i> =Colon:	
G. Amsinck & Co.....	1,500
Hirzel, Feltman & Co.....	1,500
Isaac Brandon & Brothers.....	1,500
New York Commercial Co.....	1,000
MAY 5.—By the <i>Vasari</i> =Bahia:	
J. H. Rossbach & Bros.....	26,000
Poel & Arnold.....	11,000
MAY 6.—By the <i>Morro Castle</i> =Frontera:	
Iglesias Lobo & Co.....	4,500
International Products Co.....	3,000
New York Commercial Co.....	2,000
E. Steiger & Co.....	2,000
Harburger & Stack.....	2,000
Silva Bussenius & Co.....	1,500
For Havre, etc.....	7,000
MAY 8.—By the <i>Celtic</i> =Liverpool:	
Poel & Arnold.....	15,000
MAY 8.—By the <i>El Sol</i> =Galveston:	
Continental Mexican Rubber Co.....	*55,000
Charles T. Wilson.....	*15,000
MAY 9.—By the <i>Momus</i> =New Orleans:	
Robinson & Co.....	5,000
G. Amsinck & Co.....	2,500
A. T. Morse & Co.....	1,500
T. W. Morgan.....	1,500
New York Commercial Co.....	1,000
Eggers & Heinlein.....	1,500
MAY 10.—By the <i>Matanzas</i> =Tampico:	
Ed. Maurer.....	*45,000
New York Commercial Co.....	*33,000
For Antwerp.....	*5,000
MAY 10.—By the <i>Prinz Sigismund</i> =Columbia:	
Caballero & Blanco.....	5,000
G. Amsinck & Co.....	5,000
A. Jaranillo & Co.....	5,000
A. Rosenthal & Sons.....	2,000
E. Del Castillo & Co.....	2,000
Gillespie Bros. & Co.....	1,000
MAY 11.—By the <i>Oregon</i> =Mexico:	
H. Marquardt & Co.....	2,500
J. W. Wilson & Co.....	1,000
J. Sambrado & Co.....	1,000
MAY 11.—By the <i>Cristobal</i> =Colon:	
G. Amsinck & Co.....	10,000
New York Commercial Co.....	8,500
Kunhardt & Co.....	2,500
L. Johnson & Co.....	1,500
Eggers & Heinlein.....	1,500
Dumarest Bros. & Co.....	1,500
American Trading Co.....	1,000
Delima Cortisoz & Co.....	1,000
Henry Mann & Co.....	1,000
MAY 16.—By the <i>Eastern Prince</i> =Bahia:	
J. H. Rossbach & Bros.....	34,000
New York Commercial Co.....	11,000
MAY 17.—By the <i>Prinz Joachim</i> =Colon:	
A. Santos & Co.....	3,500
A. Jaranillo & Co.....	3,000
G. Amsinck & Co.....	2,500
A. Held.....	2,500
Manhattan Rubber Mfg. Co.....	1,500
Gillespie Bros. & Co.....	1,000
MAY 18.—By the <i>Pennsylvania</i> =Hamburg:	
J. H. Rossbach & Bros.....	22,500
Poel & Arnold.....	*5,000
MAY 18.—By the <i>Alliance</i> =Colon:	
G. Amsinck & Co.....	12,500
Piza, Nephews & Co.....	7,500
L. Johnson & Co.....	3,000
Jose Julia & Co.....	2,500
Wessels Kulenkampff & Co.....	2,000
Gillespie Bros. & Co.....	1,000

MAY 18.—By the <i>Santiago</i> =Tampico:	
New York Commercial Co.....	*67,000
Ed. Maurer.....	*45,000
MAY 19.—By the <i>Croale</i> =New Orleans:	
Robinson & Co.....	10,000
A. T. Morse & Co.....	4,000
A. N. Rotholz.....	3,500
Eggers & Heinlein.....	3,000
MAY 20.—By the <i>Monterey</i> =Mexico:	
George A. Alden & Co.....	1,500
Mecke & Co.....	1,000
A. Klipstein & Co.....	1,000
International Products Co.....	1,000
MAY 22.—By the <i>El Cid</i> =Galveston:	
Continental-Mexican Rubber Co.....	*40,000
MAY 22.—By the <i>Jolando</i> =Bluefields:	
Manhattan Rubber Manufacturing Co.....	11,000
MAY 22.—By the <i>Bayamo</i> =Tampico:	
Continental-Mexican Rubber Co.....	*190,000
New York Commercial Co.....	*34,000
Poel & Arnold.....	*25,000
Ed. Maurer.....	*15,000
For Europe.....	*175,000
MAY 23.—By the <i>Prinz Eitel Friedrich</i> =Colon:	
G. Amsinck & Co.....	7,000
A. Jaranillo & Co.....	7,000
Pablo Calvert & Co.....	7,000
A. Rosenthal & Sons.....	6,000
Jose Julia & Co.....	4,000
Caballero & Blanco.....	3,500
A. Santos & Co.....	3,500
Kunhardt & Co.....	3,000
A. Held.....	3,000
Roldau & Van Sickle.....	1,000
W. R. Grace & Co.....	1,000
Isaac Brandon & Brothers.....	1,000
AFRICAN.	Pounds.
APRIL 24.—By the <i>St. Paul</i> =London:	
George A. Alden & Co.....	15,000
APRIL 24.—By the <i>Cedric</i> =Liverpool:	
James T. Johnstone.....	7,000
Rubber Trading Co.....	3,500
APRIL 25.—By the <i>Mars</i> =Lisbon:	
Wallace L. Gough.....	11,500
Muller Schall & Co.....	11,000
MAY 1.—By the <i>New York</i> =London:	
General Rubber Co.....	27,000
Robinson & Co.....	7,000
MAY 1.—By the <i>Bulgaria</i> =Hamburg:	
George A. Alden & Co.....	120,000
General Rubber Co.....	34,000
Poel & Arnold.....	22,500
A. T. Morse & Co.....	20,000
Robert Badenhop.....	14,200
Wallace L. Gough.....	5,000
MAY 1.—By the <i>Baltic</i> =Liverpool:	
George A. Alden & Co.....	7,000
A. W. Brunn.....	7,000
James L. Johnstone.....	2,000
MAY 3.—By the <i>Finland</i> =Antwerp:	
A. T. Morse & Co.....	37,000
Robinson & Co.....	7,000
Poel & Arnold.....	2,000
MAY 3.—By the <i>Caronia</i> =Liverpool:	
C. P. dos Santos.....	9,000
George A. Alden & Co.....	4,500
MAY 8.—By the <i>Philadelphia</i> =London:	
General Rubber Co.....	13,500
MAY 8.—By the <i>Celtic</i> =Liverpool:	
Poel & Arnold.....	22,500
George A. Alden & Co.....	17,000
James T. Johnstone.....	11,000
Henry A. Gould Co.....	2,500
MAY 8.—By the <i>Bretagne</i> =Havre:	
Poel & Arnold.....	115,000
MAY 8.—By the <i>Amerika</i> =Hamburg:	
Poel & Arnold.....	65,000
A. T. Morse & Co.....	56,000
Rubber Trading Co.....	15,000
George A. Alden & Co.....	8,000
Robert Badenhop.....	5,400
MAY 10.—By the <i>Kronland</i> =Antwerp:	
A. T. Morse & Co.....	60,000
Rubber Trading Co.....	22,500
Robert Badenhop.....	15,000
Poel & Arnold.....	9,000
MAY 15.—By the <i>St. Louis</i> =London:	
George A. Alden & Co.....	26,000
General Rubber Co.....	11,000
Poel & Arnold.....	9,000
MAY 17.—By the <i>Carmania</i> =Liverpool:	
Poel & Arnold.....	22,500
A. W. Brunn.....	5,500
James T. Johnstone.....	2,500

RUBBER FLUX

No. 17. Particularly adapted to softening material for tubing machine. Almost universally used for waterproofing wire.

No. 48. For fluxing pigments in compounding. A valuable adjunct to the manufacture of moulded goods as it DOES NOT BLOW UNDER CURE.

WRITE FOR PRICES.

Massachusetts Chemical Co., Walpole, Mass.

Sole Factories:
WALPOLE RUBBER WORKS
WALPOLE VARNISH WORKS
ELECTRIC INSULATION LABORATORY

THEODORE HOFELLER & CO.



Old Rubber



206-226 SCOTT ST.

BUFFALO, N. Y.

PROVED BEST BY TEST

AMAX! The "Standard" by which all "Mineral Rubbers" are at the same price the Mineral Rubber that is acknowledged by rubber superintendents throughout the world to be the best. If you are not familiar with us, we extend you a cordial invitation to "Get Acquainted." AMAX is made "Medium" and "Hard" to suit all compounds. AMAX is rich in hydrogen, the chemical agent that makes a homogeneous blend of rubber and sulphur.

For Mould Work—Boots and Shoes—Insulated Wire

AMERICAN WAX CO. General Sales Offices
161 SUMMER ST., BOSTON, MASS.



Boston

New York

BOSTON YARN CO.

86 Worth Street, New York

MOTOR TIRE FABRICS

"Lowell Weaving Co."

"Passaic Cotton Mills"

Yarns for every purpose
Sheetings

Mechanical Ducks
Osnaburgs

Auto Top Ducks
Specialties in Weaving

ED. MAURER

Representing the Madero interests of Mexico for

Guayule Rubber

PARRA

DURANGO

MADERO

LEON

BRANDS

BORNEOS

Sole agent for U. S. and Canada of the well known brands

FFF, FF, GS and SM.

Headquarters for

Surinam and Demerara Sheet Balata

Venezuelan Block Balata

Ceylon Plantation Rubber

97 WATER STREET

.

NEW YORK

MAY 18.—By the *Oceanic*=London:
George A. Alden & Co. 9,000

MAY 18.—By the *Pennsylvania*=Hamburg:
A. T. Morse & Co. 15,000
General Rubber Co. 17,000
Wallace L. Gough. 15,000
George A. Alden & Co. 11,000
Poel & Arnold. 9,000
Rubber Trading Co. 2,500
Robert Badenhop. 3,400 72,900

MAY 19.—By the *Mauretania*=Liverpool:
Poel & Arnold. 11,500

MAY 22.—By the *Kaiserin Augusta Victoria*=Hamburg:
George A. Alden & Co. 40,000
Poel & Arnold. 34,000
A. T. Morse & Co. 11,000 85,000

MAY 22.—By the *Cedric*=Liverpool:
Poel & Arnold. 15,000
James T. Johnstone. 5,500 20,500

MAY 23.—By the *Vaderland*=Antwerp:
A. T. Morse & Co. 35,000
Wallace L. Gough. 8,000
Raw Products Co. 7,000 50,000

MAY 23.—By the *Minnehaha*=London:
George A. Alden & Co. 35,000
Poel & Arnold. 11,000
Muller Schall & Co. 30,000 76,000

EAST INDIAN.

[*Denotes plantation rubber.]

APRIL 24.—By the *St. Paul*=London:
Poel & Arnold. *13,500
New York Commercial Co. *11,500 *25,000

APRIL 24.—By the *Minneapolis*=London:
Ed. Maurer. *6,500
James T. Johnstone. *4,500 *11,000

APRIL 24.—By the *Rauenfels*=Colombo:
A. T. Morse & Co. *27,000
Poel & Arnold. *22,000
New York Commercial Co. *20,000
Thomsen & Co. *9,000 *78,000

APRIL 26.—By the *Vaderland*=Antwerp:
A. T. Morse & Co. *3,000
Ed. Maurer. *5,000 *8,000

APRIL 28.—By the *Teutonic*=London:
New York Commercial Co. *25,000

APRIL 28.—By the *Braemar*=Singapore:
Ed. Maurer. *9,000

MAY 1.—By the *New York*=London:
New York Commercial Co. *77,000
Poel & Arnold. *45,000
James T. Johnstone. *3,500 *125,500

MAY 2.—By the *Finland*=Antwerp:
Robert Badenhop. 2,200

MAY 4.—By the *Pagenurm*=Colombo:
A. T. Morse & Co. *30,000
Poel & Arnold. *20,000 *50,000

MAY 4.—By the *Majestic*=London:
New York Commercial Co. *40,000
Poel & Arnold. *25,000 *65,000

MAY 5.—By the *Kasenga*=Colombo:
New York Commercial Co. *22,500
A. T. Morse & Co. *4,500 *27,000

MAY 5.—By the *Lusitania*=Liverpool:
William H. Stiles. *11,500
New York Commercial Co. *2,000 *13,500

MAY 8.—By the *Minneapolis*=London:
Ed. Maurer. *11,500
A. T. Morse & Co. *6,500
Robinson & Co. *9,000 *27,000

MAY 8.—By the *Boliviana*=Colombo:
New York Commercial Co. *65,000
A. T. Morse & Co. *55,000
James T. Johnstone. *8,000 *128,000

MAY 8.—By the *Celtic*=Liverpool:
Rubber Trading Co. *11,500

MAY 8.—By the *Philadelphia*=London:
Poel & Arnold. *35,000
New York Commercial Co. *11,500
Ed. Maurer. *4,500 *51,000

MAY 10.—By the *Kronland*=Antwerp:
A. T. Morse & Co. *60,000
Robert Badenhop. *2,500 *62,500

MAY 11.—By the *Adriatic*=London:
New York Commercial Co. *22,500
Poel & Arnold. *22,500
Poel & Arnold. 2,500 47,500

MAY 15.—By the *St. Louis*=London:
New York Commercial Co. *50,000
Poel & Arnold. *65,000
James T. Johnstone. *9,000
Ed. Maurer. *5,500
Robert Badenhop. *2,000 *131,500

MAY 15.—By the *Minnetonka*=London:
A. T. Morse & Co. *40,000
General Rubber Co. *25,000
Ed. Maurer. *8,000
Robert Badenhop. *8,000
Robinson & Co. *7,000
James T. Johnstone. *5,000 *93,000

MAY 15.—By the *Lapland*=Antwerp:
A. T. Morse & Co. *7,000

MAY 15.—By the *Aristerium*=Colombo:
New York Commercial Co. *45,000
A. T. Morse & Co. *34,000
L. Littlejohn & Co. *10,000
Poel & Arnold. *9,000 *98,000

MAY 17.—By the *Oceanic*=London:
Poel & Arnold. *56,000
New York Commercial Co. *26,000
William H. Stiles. *15,000 *97,000

MAY 18.—By the *Pennsylvania*=Hamburg:
Rubber Trading Co. *11,000

MAY 20.—By the *Satsuma*=Singapore:
Haebler & Co. 40,000
Poel & Arnold. 11,000
Wallace L. Gough. 11,000
Ed. Maurer. *9,000 71,000

MAY 23.—By the *Minnehaha*=London:
New York Commercial Co. *37,000
Poel & Arnold. *34,000
A. T. Morse & Co. *30,000
James T. Johnstone. *9,000 *110,000

MAY 23.—By the *Vaderland*=Antwerp:
Robert Badenhop. 3,700

GUTTA-JELUTONG.
APRIL 28.—By the *Braemar*=Singapore:
L. Littlejohn & Co. 210,000
Wallace L. Gough Co. 125,000
A. W. Bruun. 9,520 430,000

MAY 20.—By the *Satsuma*=Singapore:
Wallace L. Gough Co. 110,000
L. Littlejohn & Co. 110,000
Haebler & Co. 125,000
A. W. Bruun. 55,000 400,000

GUTTA-PERCHA.
APRIL 28.—By the *Braemar*=Singapore:
L. Littlejohn & Co. 22,500
Ed. Maurer. 35,000 57,500

MAY 1.—By the *Bulgaria*=Hamburg:
Robert Soltan & Co. 7,000

MAY 20.—By the *Satsuma*=Singapore:
Haebler & Co. 67,000
L. Littlejohn & Co. 33,000 100,000

BALATA.

APRIL 24.—By the *Minneapolis*=London:
Ed. Maurer. 15,000

MAY 1.—By the *Coppename*=Demerara:
Middleton & Co. 10,000
Charles E. Griffin. 1,500
Frame & Co. 1,000 12,500

MAY 11.—By the *Grenada*=Trinidad:
G. Amsinck & Co. 8,000

MAY 11.—By the *Cristobal*=Colon:
Eggers & Heinlein. 8,000
Bartling & De Leon. 2,000 10,000

MAY 15.—By the *Korona*=Demerara:
American Trading Co. 6,000
Middleton & Co. 6,000
Ed. Maurer. 2,000 14,000

MAY 22.—By the *Marowijne*=Trinidad:
Middleton & Co. 3,500
Iglesias Labo & Co. 3,500 7,000

CUSTOM HOUSE STATISTICS.

PORT OF NEW YORK—APRIL.

Imports:	Pounds.	Value.
India-rubber	5,238,901	\$5,458,263
Balata	111,868	83,279
Gutta-percha	239,612	66,893
Gutta-jelutong (Pontianak)	1,822,024	102,266
Guayule	1,145,076	489,922
Total	8,557,481	\$6,200,623

Exports:	Pounds.	Value.
India-rubber	199,787	\$173,564
Balata	.....	.....
Gutta-percha	.....	.....
Guayule	65,433	34,950
Reclaimed rubber	131,564	16,032
Rubber scrap, imported	720,908	\$59,430
Rubber scrap, exported	551,542	64,588

BOSTON ARRIVALS.

MARCH 1.—By the *Devonian*=Liverpool:
George A. Alden & Co (Africans) 5,300

MARCH 5.—By the *Inverclyde*=Singapore:
For order (East Indian) 30,000
For order (Jelutong) 175,000 205,000

MARCH 12.—By the *Michigan*=Liverpool:
L. Sutro (Africans) 2,500

MARCH 15.—By the *Patricia*=Hamburg:
George A. Alden & Co (Africans) 2,000

MARCH 26.—By the *Indrasamah*=Singapore:
State Rubber Co. (Jelutong) 450,000
L. Littlejohn & Co (Jelutong) 165,000
Geo. A. Alden & Co. (Jelutong) 55,000 670,000

MARCH 28.—By the *Bohemian*=Liverpool:
Poel & Arnold 2,000

APRIL 5.—By the *Sachem*=Liverpool:
Geo. A. Alden & Co. (Africans) 2,200

APRIL 13.—By the *Livernia*=Liverpool:
Poel & Arnold (Africans) 12,000

APRIL 13.—By the *Katuna*=Singapore:
State Rubber Co. (Jelutong) 110,000
L. Littlejohn & Co. (Jelutong) 150,000
Wallace L. Gough (East Indian) 8,700 268,700

APRIL 20.—By the *Zesland*=Liverpool:
L. Sutro (Africans) 5,300

PARA EXPORTS OF INDIA-RUBBER, MARCH, 1911 (IN KILOGRAMS).

EXPORTERS.	NEW YORK.					EUROPE.					TOTAL.
	Fine.	Medium.	Coarse.	Cauch.	TOTAL.	Fine.	Medium.	Coarse.	Cauch.	TOTAL.	
Gruner & Co.	35,700	17,170	85,379	436	138,685	90,846	7,485	29,840	47,638	175,809	314,494
E. Pinto Alves & Co.	45,123	2,849	111,460	7,049	166,481	57,775	3,716	9,715	18,485	89,691	256,172
J. Marques	6,970	340	2,310	.....	9,620	194,916	35,013	12,194	3,503	245,626	255,246
Adelbert H. Alden, Ltd.	77,115	.....	.....	.....	77,115	11,985	1,275	55,957	36,300	105,517	182,632
Scholz, Hartje & Co.	3,230	680	14,520	.....	18,430	28,232	2,050	12,801	44,220	87,303	106,063
Suarez Hermanos & Co., Ltd. ....	.....	.....	.....	15,836	15,836	38,973	.....	5,552	19,202	100,558	100,558
R. O. Ahlers & Co. ....	.....	.....	.....	330	18,760	74,552	.....	3,456	13,732	56,161	71,997
Pires Teixeira & Co.	7,480	340	4,620	330	12,770	16,490	.....	4,290	.....	20,780	33,550
Gordon & Co. ....	.....	.....	.....	.....	.....	.....	.....	.....	20,130	20,130	20,130
A. de la Riviere & Co. ....	.....	.....	.....	.....	.....	9,467	1,315	5,193	.....	15,975	15,975
De Lagotellerie & Co. ....	.....	.....	14,190	.....	14,190	.....	.....	.....	.....	14,190	14,190
Braca Sobrinho & Co. ....	.....	.....	.....	.....	.....	3,859	397	.....	.....	4,256	4,256
Sundries .....	.....	.....	.....	.....	.....	20,740	340	6,600	47,084	74,764	74,764
Itacoatiara, direct .....	.....	.....	.....	.....	.....	10,360	900	3,480	405	15,145	15,145
Manaos, direct	89,909	49,544	49,338	49,342	238,133	755,584	119,246	230,117	254,124	1,359,071	1,597,204
Iquitos, direct	3,399	769	1,685	3,176	9,029	36,106	3,359	19,670	46,363	105,500	114,529
Total, March, 1911.	268,926	71,692	283,502	76,499	700,619	1,349,885	176,348	399,138	551,188	2,476,559	3,177,178
Total, February, 1911.	462,123	111,594	454,235	113,921	1,141,873	1,477,804	201,533	330,181	608,595	2,618,113	3,759,986
Total, January, 1911.	728,494	157,522	563,542	245,226	1,694,784	884,484	117,265	123,838	287,438	1,413,025	3,107,809



Vol. 43.

JUNE 1, 1911.

No. 3.

TABLE OF CONTENTS.

Editorial:

Brazil and Valorization.....	Page. 295
A Multiplication of Elasticity in India-Rubber.....	295
Mechanical Tappers and Gatherers.....	296
Theatres or Experiment Stations.....	297
Listen to the Rubber Band.....	297
A. C. A. Special Tires.....	297
Minor Editorials.....	297
British Guiana and India-Rubber.....	299
[Mistaken Ideas of British Guiana. My First Visit to Georgetown. Up the Essequibo River. Old Dutch Ruins. The Penal Settlement. At the Sisal Man's Bungalow. Native Heveas. A Railroad Ride. The Botanical Gardens. Rubber Experiments. The Director of Science and Agriculture and His Work.]	
India-Rubber Trade in Great Britain.....	305
[The Exhibition. Tire Notes. The Deresination of Rubber. Refrigeration in the Rubber Industry. Brevities.]	
A Last Word Before the Exhibition Opens.....	307
[With 3 Portraits.]	
Recent Patents Relating to Rubber.....	309
[United States. Great Britain. France.]	
United States Rubber Co.—Annual Report.....	311
[With Portrait of Colonel Samuel P. Colt.]	
Rubber Goods Manufacturing Co.'s Twelfth Annual.....	315
Maderos, Mexico and the Situation.....	317
[With 2 Illustrations.]	
The Rubber Planting Interest.....	318
[With 2 Illustrations.]	
The Manufacture of Insulated Wire.—I.....	319
[By a Practical Man]	
The Editor's Book Table.....	320
The Obituary Record.....	321
[Dr. Pehl Olsson-Seffer, with Portrait.]	
Fire Hose—Criticism and Suggestion.....	322
New Rubber Goods in the Market.....	325
[With 12 Illustrations.]	
New Firestone Plant.....	330
Illustrated	
Miscellaneous:	
India-Rubber and Balata in Dutch Guiana.....	304
[Our Regular Correspondent]	
New "Castilloa" Tapping Device.....	304
Brief Notes from Japan.....	306
Japanese Imports of India-Rubber.....	306
Improved Rubber Tubing Machine.....	310
A Vertical Brushing Machine.....	310
India-Rubber Goods in Commerce.....	314
Buchtel College Rubber Laboratory.....	316
Rubber Reclaimers' Club Luncheon.....	316
United States Statistics to March 31, 1911.....	316
New Trade Publications.....	321
Indigenous Rubber at the Exhibition.....	322
Results of the Grant Patent Decision.....	327
Conshohocken's New Rubber Factory.....	329
German Foreign Trade in Crude and Manufactured Rubber.....	334
News of the American Rubber Trade.....	331
[With 1 Illustration.]	
The Trade at Akron.....	328
The Trade in San Francisco.....	328
Review of the Crude Rubber Market.....	335

Amsterdam.

F. JOOSTEN reports [May 4]:

The result of the tender sale on May 3 was partly unsatisfactory as about 7,956 kilos, of the approximately 14,800 kilos offered, found buyers. For the better grades, competition was strong and several lots of Hevea crepe and sheets as well as Rambong ball fetched high prices, far above foreign parity. The other grades, however, were neglected. Only in a few instances owners refused to accept the lower prices offered in consequence of the declining tendency of the market generally.

Liverpool.

WILLIAM WRIGHT & Co. report [May 1]:

Fine Pará.—Owing mainly to the inaction of the syndicate, in addition to a poor trade demand, prices declined from 6s. 2d. [= \$1.50] to 4s. 9d. [= \$1.16]; this lower price, however, induced a trade inquiry, and prices subsequently advanced to 5s. 3½d. [= \$1.29], closing steady thereat. All sorts of rumors are current as to what the syndicate will or will not do. Until some definite course of action is decided on we shall continue to have uncertain markets, but we venture to think that present rates are worth some attention from the manufacturers' point of view. Closing value: Upriver, 5s. 3½d.

Plantation Rubber from the Far East.

EXPORTS OF CEYLON GROWN RUBBER.
[From January 1 to April 10, 1910 and 1911. Compiled by the Ceylon Chamber of Commerce.]

	1910.	1911.
To Great Britain	342,945 pounds	783,172
To United States	312,693	545,374
To Belgium	8,472	83,152
To Australia		12,613
To Japan		11,953
To Canada	1,911	9,971
To Germany	6,683	6,833
To Italy	452	750
To Holland		100
To India		40

Total 673,156 1,453,958
[Same period 1909—252,039; same 1908—157,123.]

TOTAL EXPORTS FROM MALAYA.

[From January 1 to dates named. Reported by Barlow & Co., Singapore. These figures include the production of the Federated Malay States, but not of Ceylon.]

FROM—	1909.	1910.	1911.
Singapore (to March 30)	574,490 pounds	780,912	1,401,645
Penang (March 4)	496,971	330,267	847,722
Port Swettenham (March 2)		1,329,538	2,479,933
Total	1,071,461	2,440,717	4,729,300

Antwerp.

RUBBER ARRIVALS FOR APRIL.

DETAILS.	1911.	1910.	1909.	1908.	1907.
Stocks, March 31.....	645,614 kilos	499,102	595,855	1,136,892	725,538
Arrivals in April.....	266,377	429,870	330,277	211,549	304,873
Congo sorts	131,553	340,456	219,645	175,000	228,927
Other sorts	134,824	89,414	110,632	36,549	74,946
Aggregating	911,991	928,972	926,132	1,348,441	1,030,411
Sales in April.....	312,877	458,504	318,345	630,528	568,838
Stocks, April 30.....	599,114	470,468	607,787	717,913	461,573
Arrivals since January 1.....	1,536,045	1,469,549	1,458,369	1,729,358	1,637,631
Congo sorts	1,072,515	1,171,286	1,001,032	1,522,423	1,381,092
Other sorts	463,530	298,263	457,337	206,935	256,539
Sales since January 1.....	1,525,143	1,540,593	1,446,317	2,018,339	1,834,242

RUBBER ARRIVALS FROM THE CONGO.

APRIL 19.—By the steamer *Leopoldville*:

Bunge & Co.	(Société Générale Africaine) kilos	54,900
Do	(Comptoir Commercial Congolais)	7,400
Do	(Beligka)	700
Do	(Comité Spécial Katanga)	4,200
Société Coloniale Anversoise.....	(Belge du Haut Congo)	500
Do	(Cie. du Kasai)	59,600
Do	(Cie. du Lomami)	6,000
L. & W. Van de Velde		11,000
Charles Dethier	(American Congo Co.)	1,900 150,600

MAY 10.—By the steamer *Bruxellesville*:

Bunge & Co.	(Société Générale Africaine) kilos	72,700
Do	(Chemina de fer Grands Lacs)	3,600
Do	(Comptoir Commercial Congolais)	28,200
Do	(Comité Spécial Katanga)	2,000
Do	(Alberta)	160
Société Coloniale Anversoise.....	(Sud Cameroen)	9,000
Do		180
L. & W. Van de Velde.....	(Cie. du Kasai)	81,000
Do	(Société Com. and Financ. Africaine)	4,000
Do		3,000
Charles Dethier.....	(American Congo Co.)	1,700
Do	(Société Comm. and Minière du Congo)	1,150
Willaert frères		1,500
Cassart & Henrion		750 208,940

Rubber Scrap Prices.

LATE NEW YORK quotations—prices paid by consumers for carload lots, per pounds—are practically unchanged as follows:

Old rubber boots and shoes—domestic..	9½ @ 9½	9½ @ 9½
Old rubber boots and shoe—foreign..	9 @ 9½	9½ @ 9½
Pneumatic bicycle tires.....	4½ @ 4½	4½ @ 4½
Automobile tires	8½ @ 8½	8½ @ 9½
Solid rubber wagon and carriage tires	8½ @ 9	9½ @ 10
White trimmed rubber.....	11 @ 11½	11 @ 11½
Heavy black rubber.....	4¾ @ 5¼	4¾ @ 5¼
Air brake hose	4¾ @ 5	4¾ @ 5
Garden hose	2 @ 2¼	2 @ 2¼
Fire and large hose	2½ @ 2¾	2½ @ 2¾
Matting	1 @ 1½	1 @ 1½

